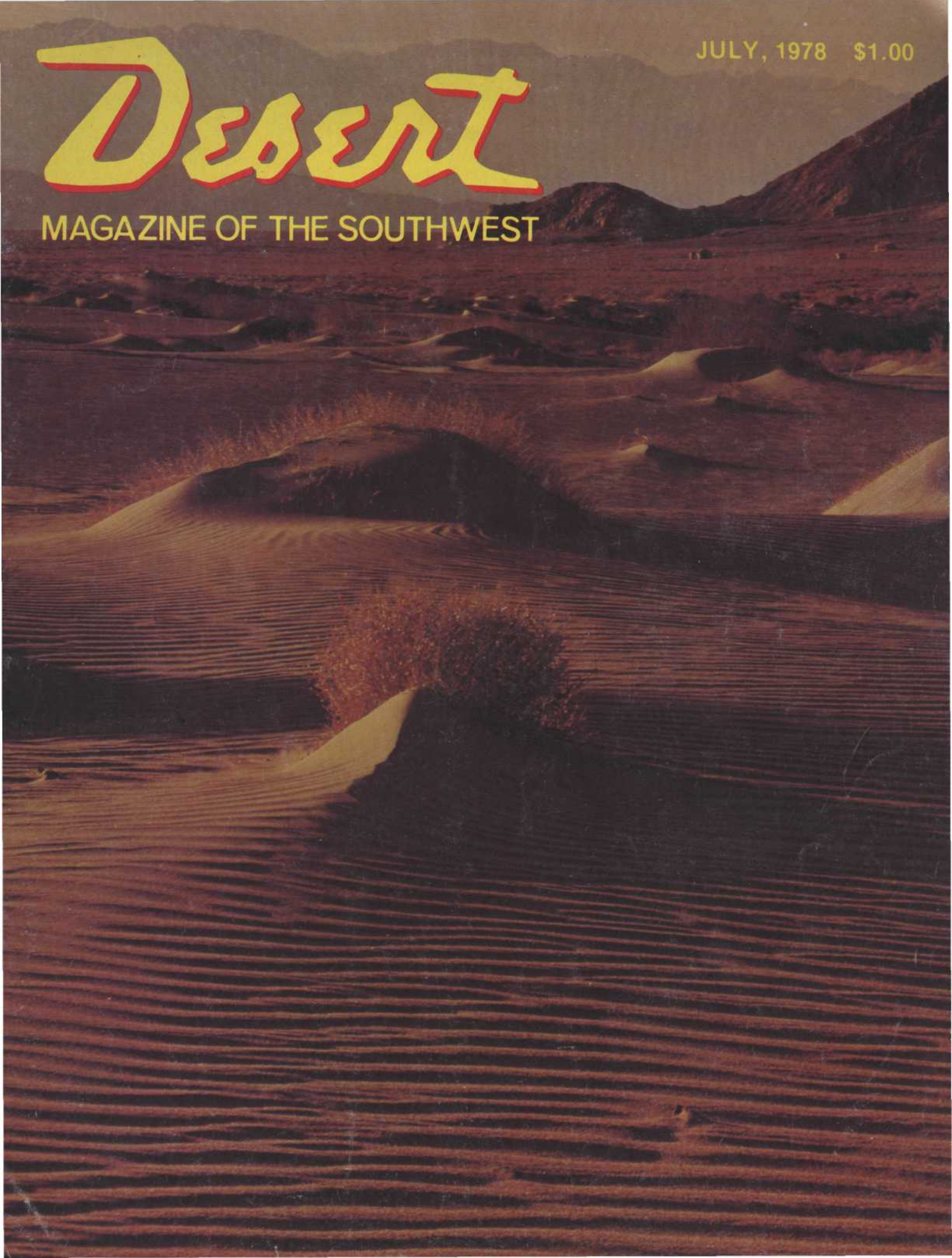


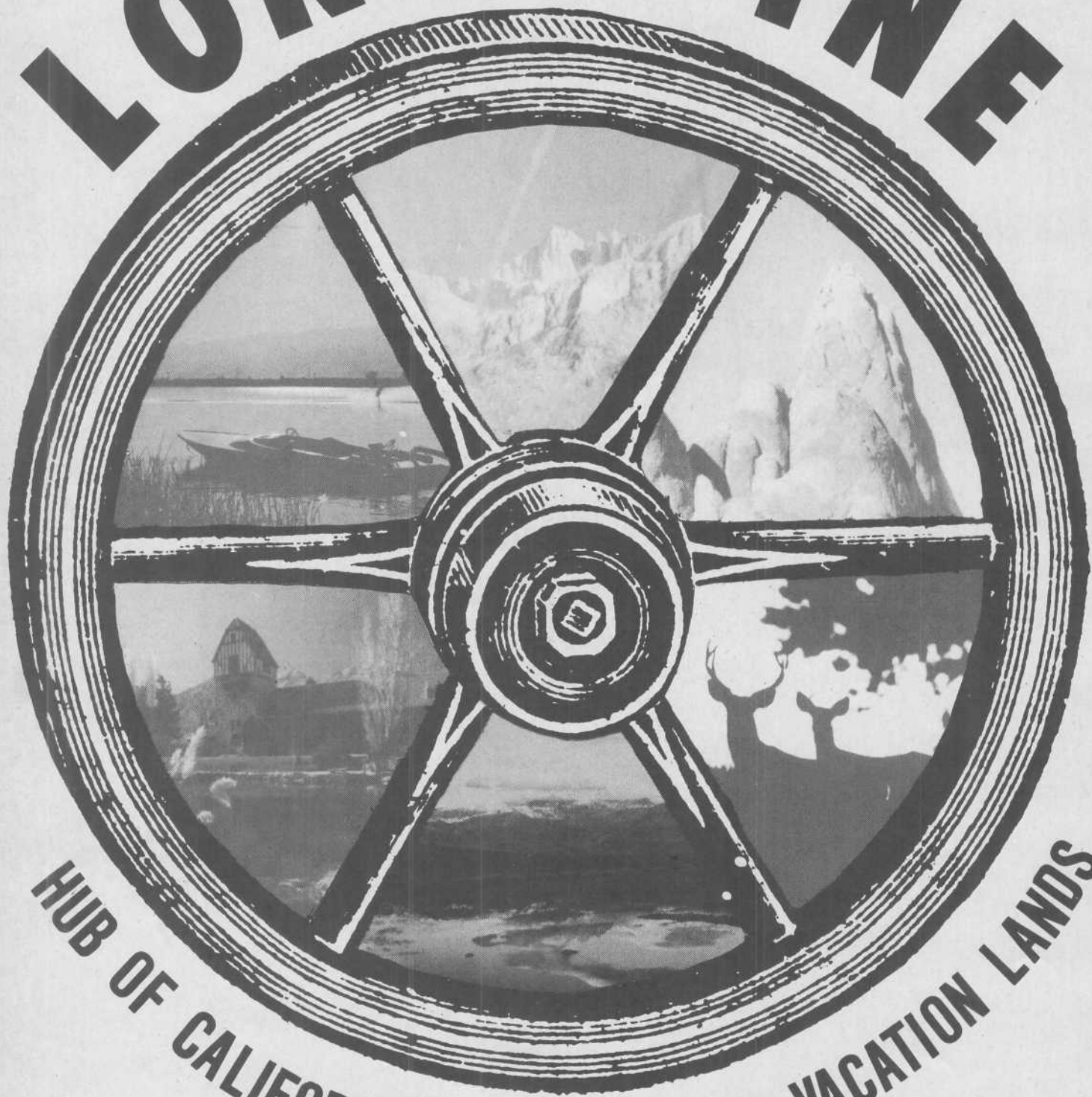
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CONTENTS

FEATURES

TWO OF MONO'S FORGOTTEN GHOSTS	8	Roger Mitchell
NEW MEXICO'S WHITE SANDS	12	Edwin D. Anthony
SEVENTEEN PALMS OASIS	16	Dick Bloomquist
BEAR VALLEY, CALIFORNIA	18	Howard Neal
DESERT WILDERNESS, NEW BATTLEGROUND FOR BLM	20	Bill Jennings
OWENS LAKE LOOP TRIP	24	Mary Frances Strong
ANASAZI INDIAN VILLAGE	30	Betty Shannon
PARASITES OF THE DESERT	32	Wayne P. Armstrong
CASA GRANDE TO QUIJOTOA	36	Dick Bloomquist
WHAT'S COOKING ON THE DESERT?	40	Stella Hughes



THE COVER:
Colorful desert sands of
Owens Valley, California near
State 190. Photo by David
Muench of Santa Barbara,
California.

DEPARTMENTS

A PEEK IN THE PUBLISHER'S POKE	4	William Knyvett
NEW BOOKS FOR DESERT READERS	6	Book Reviews
CALENDAR OF WESTERN EVENTS	38	Club Activities
TRADING POST	42	Classified Listings
BOOKS OF THE WEST	44	Mail Order Items
LETTERS TO THE EDITOR	46	Readers' Comments

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A Peek in the Publisher's Poke

WELL, I guess our desert has really been discovered! It wasn't too many years ago that a person who ventured into the desert during the summer months was thought to be daft. Now, places like Death Valley, the hottest place in the United States, is experiencing tremendous popularity right in the July/August scorchers.

Other California resort areas such as Palm Springs and Palm Desert, which were very, very seasonal, are now year-round attractions.

One enterprising company, manufacturers of Palm Springs Desertan Suntan Oil, is holding the First Palm Springs Desertan Suntanning Contest from June 30th to July 4th! Registration will take place in the Desert Inn Fashion Plaza on June 30th between 10 a.m. and 3 p.m. Each contestant will have their skin color measured with a light meter and the person with the best color accumulation (other than red, I presume), will win two round-trip tickets to Lake Tahoe, via Air California. The winner will be exhilarated, obviously, all others will do a slow burn. Ouch!!

Our feature article this month is on that ever-popular recreational area of California's beautiful Owens Valley. Be sure to catch Mary Frances Strong's "Owens Valley Loop Trip," as well as Roger Mitchell's interesting tale of "Mono's Two Forgotten Ghosts." This valley on the eastern side of the Sierra Nevada, holds fascinations galore for back-packers, fishermen, hikers, rock-hounds, ghost town and old mining buffs — you name it, Owens Valley has it.

William Kuyper

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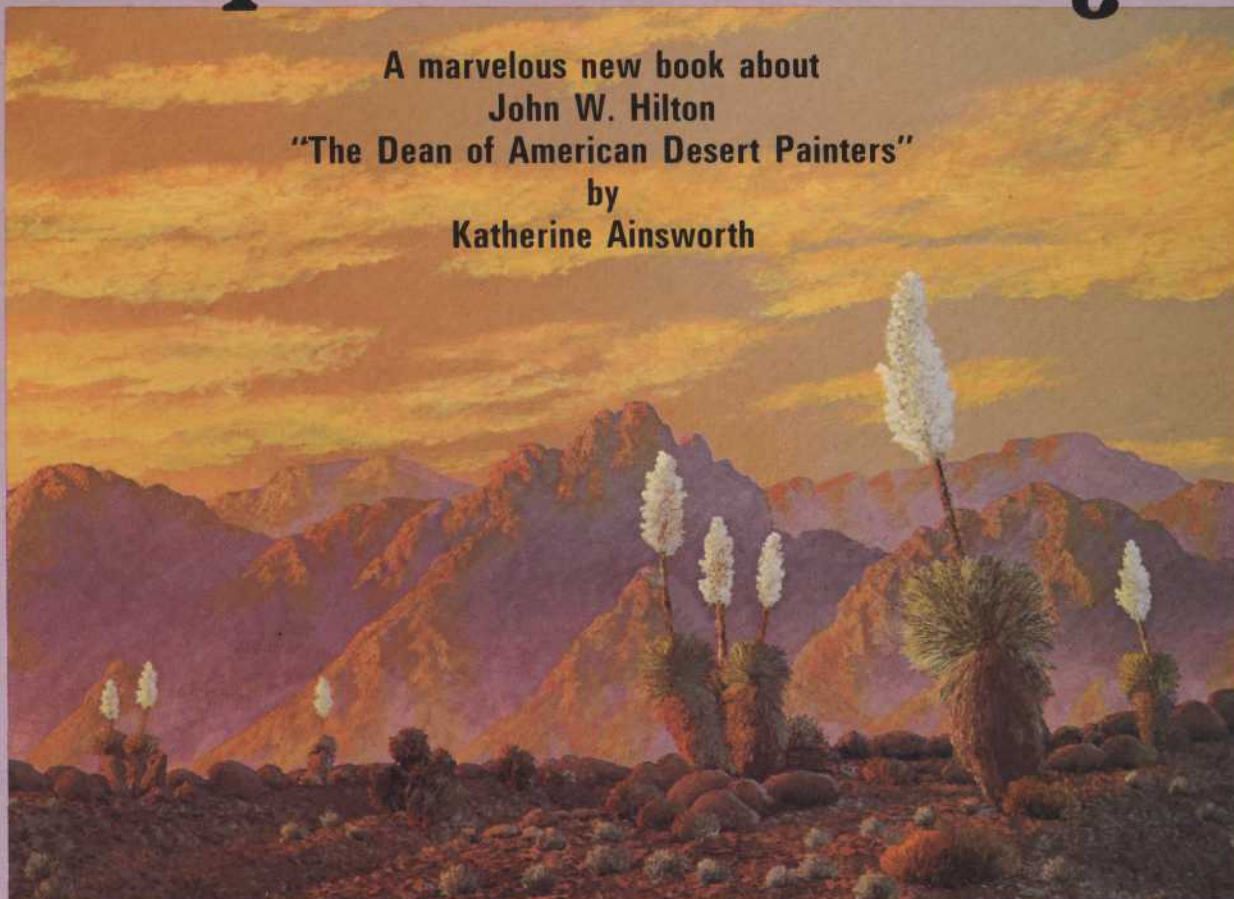
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The Man Who Captured Sunshine is inspirational . . . a book which inspires one to overcome adversity, to achieve excellence, to strive for a genuine joy of living. The reader will cry, but more often will find himself/herself enjoying the pleasure of hearty laughter, of grand adventure. The significance of this book, above all else, lies in an impelling force which inspires the reader to live a fuller, more meaningful, more joyous life . . . to be a doer, a creator, a giver.

The author, Katherine Ainsworth, makes no apology for the "lack of objectivity" in writing this book . . . she has been a friend and admirer of John Hilton for over thirty years. Katie's late husband, Ed Ainsworth, was John Hilton's best friend for almost as many years. This "labor of love" has resulted in a magnificent book about a magnificent man.

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THE AUDUBON
SOCIETY
FIELD GUIDE TO
NORTH AMERICAN
BIRDS

Western Region

By Miklos
D. F. Udvardy

This guide covers the birds of western North America, with the chain of the Rocky Mountains serving as a convenient natural division of the vast North American continent. Altogether, 508 species are described and illustrated; in addition, a small number of "accidental" or marginally occurring species are listed in the back of the book.

No matter how a bird guide is organized, its illustrations must form the basis of bird identification. This book uses photographic illustrations rather than paintings or drawings common in traditional guide books because photographs add a new dimension in realism and natural beauty.

This guide also departs from the standard grouping of birds by scientific families, that is, according to structural features. It does so simply because a novice would probably not know the family of a bird seen in the wild and would have to search at random through the pages of a conventional guide until he hit upon a picture that looked like the bird he had glimpsed.

The illustrations in this book have thus been organized not by families but by

clearly visible characteristics. They have been grouped according to an obvious similarity in shape or appearance among certain birds, as for example, in the group called "Gull-like Birds," or according to a shared behavior pattern, as in the group called "Tree-clinging Birds." Although these categories are hardly perfect—nature does not always lend itself to neat classifications—they will surely prove very useful as a first step in identifying a bird.

So the bird-watcher using this guide can see at a glance the typical shapes of the birds in each category, silhouettes of those shapes are shown on the pages immediately preceding the entire section of 627 color plates. Most of these beautiful photographs are of adult males, since they are generally the most colorful and conspicuous and thus the easiest to identify.

This guide is definitely a new functional format that should be a treat for every bird watcher. Covered with a sturdy vinyl, this guide contains 627 four-color photographs, 853 pages, and is priced at \$8.95.

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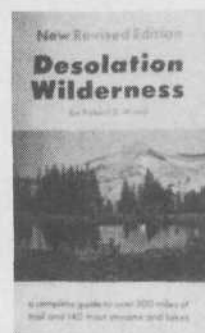
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DESOLATION WILDERNESS
a complete guide to over 200 miles of trail and 140 trout streams and lakes

By Robert S. Wood

Desolation Wilderness must surely offer as much beauty per square mile as any alpine region in the world. But the attributes that keep it the most popular roadless area in the state—and the third most heavily used Wilderness in America—are its compactness and its ease of access. No wild section of the Sierra crest is friendlier, more easily reached or

easier to travel. This combination of wildness, popularity and beauty suggests why Congress, in October 1969, conferred upon it full Wilderness status while expanding its boundaries by nearly 50 percent.

In outline, The Wilderness looks like an irregular oval, with its long axis following the Sierra crest. It ranges six to eight miles in width, about 15 miles in length, and comprises just better than 100 square miles. Topographically, the area is most easily envisioned as two back-to-back glacially excavated valleys lying between two parallel ranges of mountains.

The region covered by this book—about 150 square miles—includes the Wilderness proper (just 100 square miles) plus the buffer zone that lies between it and the roadheads that provide access. Generally speaking, this region is bounded by Highway 89 along Lake Tahoe in the east, Highway 50 in the south, the Wrights and Loon Lakes roads in the west, and the Miller Lake Jeep Trail to Wentworth Springs in the north.

Ease of travel within the Wilderness region will amaze habitues of the mighty southern. Dayhikers can easily visit half a dozen lakes in several watersheds before returning to camp or car. It is even practical to make an east-west traverse of the region in a single day.

Desolation Wilderness, because of its compactness, its small size and comparatively low elevation, is justly famous as the gentlest, friendliest, most inviting section of the Sierra Nevada crest. But visitors should not be lulled by any false sense of security. The land is wild and can be hazardous, even to the experienced and prepared. Newcomers to backpacking often come poorly prepared for wilderness survival, and Desolation's friendly reputation may cause many to underestimate its potential dangers.

The least menacing aspect of the environment is its wildlife. There are no rattlesnakes or scorpions (or poison oak) and the relatively docile black bear rarely ventures into such open, unsheltered country. The shy coyote, like the deer, makes himself scarce during the summer months, but moves freely through the country during the winter, spring and fall.

This new revised edition of the Desolation Wilderness country gives a short history of the area, and then divides it

into eight separate regions. Each of these regions constitutes a chapter in the book. The chapter is further divided into sections, and each section is a separate trail. Numerous maps, drawn by the author, show many miles of trails and

cross-country routes not found elsewhere. With this book, even a stranger to the area can find his way with ease through the 150 square miles of mountain wilderness described.

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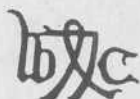
by Sessions S. Wheeler

The unknown people who, thousands of years ago, lived beside a large lake and left behind puzzling evidences of their cultures; the first white explorers; the forty-niners who followed Lassen's "Death Route"; the desert's vicious Indian war; lost mines; and the history of the basin's big ranches are included in the fascinating story of an unusual part of our earth, Nevada's Black Rock Desert.

"Buck" Wheeler is widely known as an authority on Nevada history and geology.

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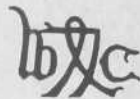
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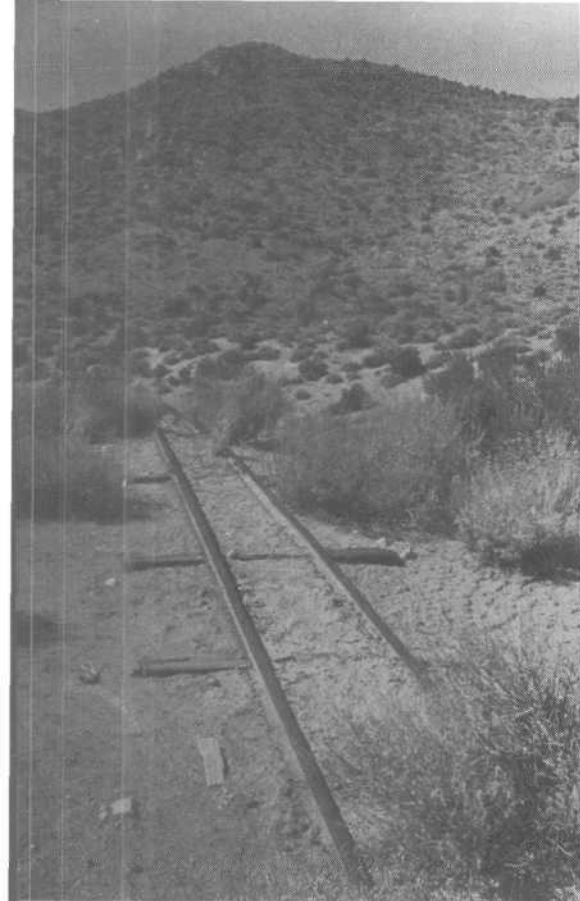
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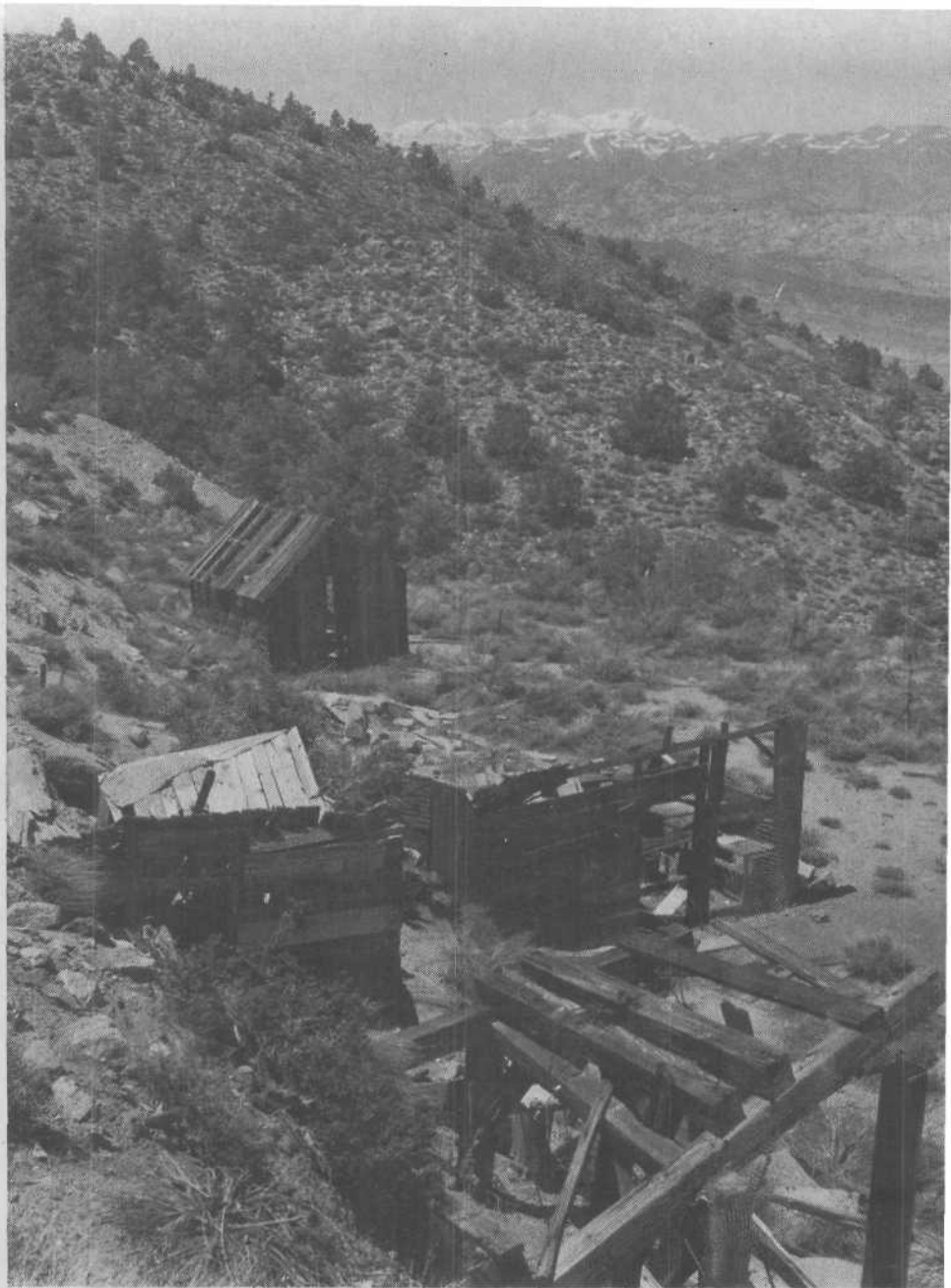
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Long abandoned rails
to nowhere [above] and
weather-worn skeletons of
once sturdy structures
[right opposite] are all that
remain of Blind Spring Hill.



Two of Mono's Forgotten Ghosts

by ROGER MITCHELL

THE CIVIL WAR was well underway. While the forces of blue and grey were locked in mortal combat in the East, out West there was a different kind of excitement. The gold rush of '49 had quieted down and it was now silver that was getting all the attention. In a remote corner of California, just west of the Nevada State line in Mono County, the mining camps of Montgomery City and Blind Spring Hill were just becoming known, as was Benton, their major supply center.

The founding fathers of Montgomery had no doubt of that camp's potential for success, so they named it "Montgomery City." And a city it was, for a while anyway. Unfortunately for those optimistic souls, the cycle of birth, boom and bust was a short one. The ore failed to live up to the promising surface showing, and a flash flood roaring out of the White Mountains wiped out the town. Montgomery City never recovered.

Blind Spring Hill, on the other hand, never developed into a town as such, but the mountain was much more generous to its residents. In fact, it supported several thousand miners in its heyday. Although the total production was not accurately recorded, an estimated four to five million in silver bullion is thought to have passed through the Wells Fargo office in Benton between 1862 and 1888, and total production from the hill could be near six million.

If your vacation plans take you along Highway 395 this summer, in that popular vacation land east of the High Sierras, you might consider a side trip to these two remote and little-known ghost camps of eastern Mono County.

The jumping-off place to visit either Montgomery City or Blind Spring Hill is Benton Station, once a stop on the Carson and Colorado Railroad. This is where State Route 120 and U. S. Highway 6 meet, just south of the Nevada state line. It is 48 miles west of Lee Vining, California on State Route 120, or 34 miles north of Bishop on U. S. Highway 6. Do not, however, confuse the Benton Station of today with the Benton of yesteryear. Benton is four miles west of the present Benton Station.

The road to Montgomery City starts at the only intersection in downtown Benton Station. Here turn east away from Highway 6. Go past the Cal Trans highway maintenance station. In 0.2 miles

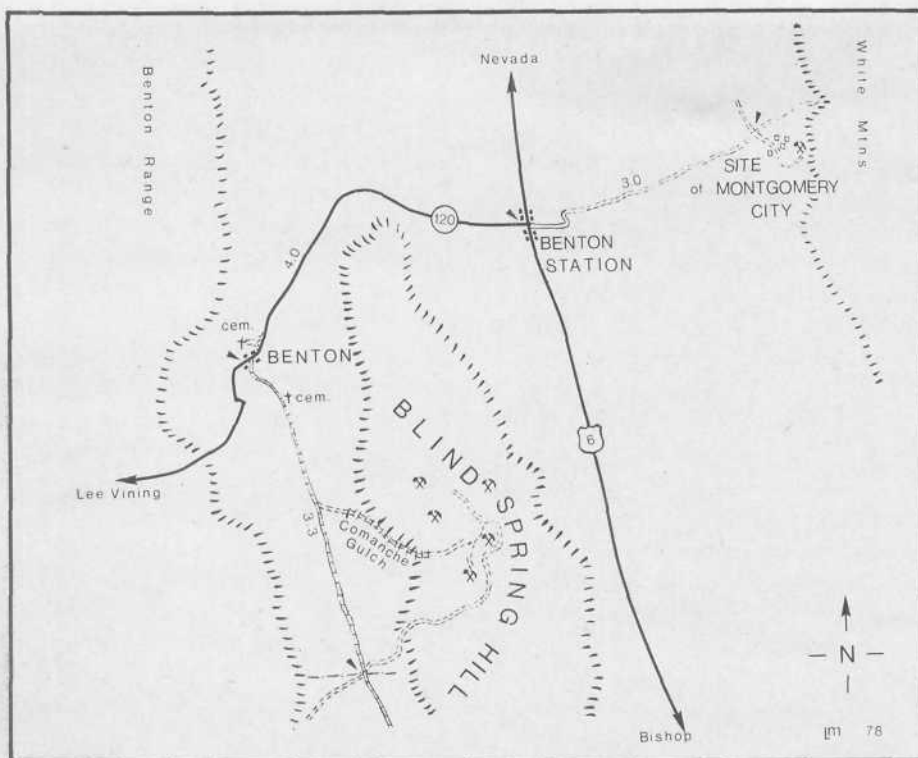
you will be in the community dump. Turn left here. After a tenth of a mile, these tracks will turn eastward again heading towards the White Mountains. The road turns rough and rocky as it heads up the sage-covered alluvial fan. I would not recommend the road for heavily laden passenger cars, but, with care, those with vans or pickups should be able to make it. It is only a couple of miles to the site of Montgomery City. You can recognize it by the ruins of low stone walls scattered throughout the sage. Time and the elements have taken their toll on what was left by the flash flood of the 1860s. The ruins of only ten rock walled structures, and one wooden cabin remain. The dim outline of a wagon road still bisects the site, pointing the way to the diggings on up on the hill.

Today Montgomery is a far cry from the city that once boasted on having two newspapers.

Blind Spring Hill is on the west side of Highway 6. From Benton Station take State Route 120 west four miles, where you will find a half dozen scattered buildings which mark the site of Benton. Benton was originally known as Warm Springs, but the name was changed to Benton, which lasted through its heyday. After the turn of the century, it became known as Benton Hot Springs and today local residents often refer to it simply as "Old Benton."

By whatever name, Benton prospered with the mines of Blind Spring Hill. In 1879 William Barnes, the editor of the *Borax Miner*, shut down his paper in nearby Columbus, Nevada, and moved





house, attorneys L. E. Tubbs and J. C. Mitchell, and J. B. Badger and George Rowan, whose stores sold everything—dry goods, groceries, liquor, grain, hay, drugs and general merchandise. The Exchange Hotel advertised accommodations unsurpassed by any house outside the great cities of the coast, presumably including another of Benton's hostelries, the California Hotel. There was also a public school with an enrollment, in 1879, of 24 pupils.

Many of the mines were worked by Chinese and Indians, some of which had drifted in from other nearby camps like Aurora, Silver Peak and Columbus. These two ethnic groups had their own communities, as was the custom of the day, and there was some animosity between them. The Chinese had no women, and on occasion, trouble erupted when a Coolie would woo an Indian maiden. On the whole, however, Benton was a much more law-abiding community than its sister-city, Bodie, just up the road.

Most of old Benton is gone now, but several century-old buildings remain. One of those early structures is a combination store-cafe-gas station which is still in use and open to the public. In Benton's heyday it was the Wells Fargo Office through which much of the bullion passed.

From Benton take the graded county road south 3.3 miles to a point where it crosses a cattleguard. Before going through the fence, however, turn left following the dim tracks leading back north-easterly away from the fence. Soon the road becomes rough and steep as it climbs Blind Spring Hill. Again, the road is not recommended for passenger cars, and four-wheel-drive may be necessary in places until the top of the mountain is reached. Once on top, the road gets much better as it traverses the gentle rolling terrain to the north. If your vehicle won't make it, don't be discouraged; get out and walk. It is only 1000 feet in elevation difference from the bottom of the hill to the top, and most of the mines are within a mile or two.

Old diggings and ruins are to be found everywhere. Most are low stone walls which once were cabins sheltering the miners. The elevation here is about 7000 feet. Even the ubiquitous tent found in most western mining camps was not adequate shelter to protect the hardy resi-

to Benton, where he started publishing the *Mono Weekly Messenger*. This paper was soon succeeded by the *Weekly Bentoman*. Ads in these papers were purchased by such businesses as

the Cosmopolitan Saloon, the Old Corner Saloon, the Benton Brewery, the Fashionable Tonsorial Saloon (which offered tooth extracting as well as a shave and a haircut), Prow's Variety Store and Bath-

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dents from the cold bite of the winter wind. Some of the ruins offer a clue as to their original use and occupancy. Hundreds of broken crucibles near one site suggest strongly that it was the local assay office. An abundance of bones, some obviously cut, near another, suggests the local butcher set up shop there.

Interest in Blind Spring Hill began in 1863. By 1865 the main mines were the Elmira, Eureka, Cornucopia, Kerrick, Diana, Comanche, Kearsarge, Laura and Modoc. Production during the early years of 1863-1871 is said to have been \$1,500,000. The lodes became better with depth, however, for the production in the ten year period of 1871-1881 was recorded at \$2,853,967. In 1875 one mine alone, the Diana, was said to be shipping five silver bars a month, each weighing 94 pounds and each with a purity of 94%. In the period of 1881-1883, the Carson and Colorado Railroad was built starting at Mound House, Nevada, near Carson City, to the southern end of the Owens Valley. Its narrow gauge tracks ran just a mile east of Blind Spring Hill and gave the miners easier transport for incoming machinery and outgoing bullion. Not everything moved by rail, however, as an 1884 edition of the *Inyo Independent* said "the stage from Carson City was making good time, 25 hours, and Sunday's *Chronicle* could be had on Tuesday by the citizens of Benton.

As you follow the parallel tracks northward along the mountain top, you will soon pass the unmarked ruins of the Cornucopia Mine, one of the larger producers in the district. If you keep to the left at the fork in the road, you will come to the Diana Mine, another of the hill's major mines. At one time wagons rolled down Comanche Gulch, which was the most direct route to Benton, but that road was washed out years ago and remains impassable today to all but the hiker.

If you are interested in old bottles, bring a shovel and a rake. Most of the easily found dumps have been picked over, but I know for a fact that there are still century-old bottles to be found on Blind Spring Hill.

Whether your visit amounts to a few hours or a few days, Montgomery City and Blind Spring Hill offer a good glimpse into a forgotten moment of history overlooked by most ghost town guidebooks. □



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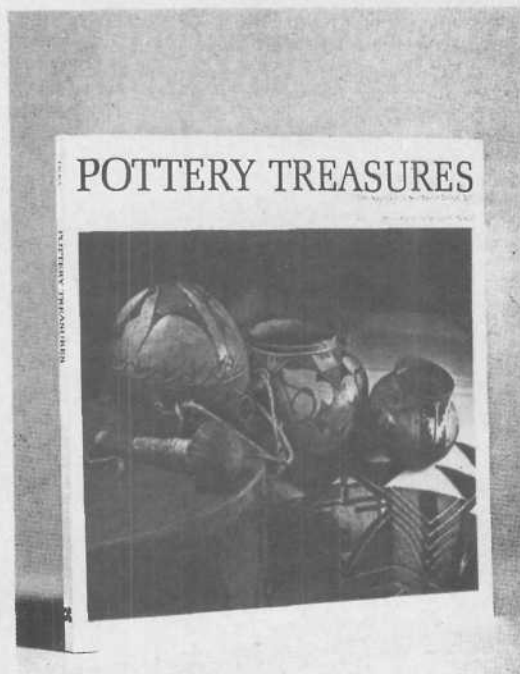
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Left: Flats between dunes are temporary home to small animals that will eventually be evicted by the advancing sand. Below: Indian Ricegrass clings tenaciously to life in a hostile world of gypsum sand.

NEW MEXICO'S

LOOK AT all the snow, Dad!" my six-year-old son exclaimed as we entered the dunefield at White Sands National Monument in southern New Mexico. I'll have to admit that had I been placed there without knowing where I was, I might have reached the same mistaken conclusion. This sand just doesn't look like normal desert or beach sand—it's the wrong color. Being 97% pure gypsum, it has no color at all. It is simply white, with a capacity to reflect light so great that the dunefield is among the most clearly visible landmarks on Earth for astronauts in space, identifiable from halfway to the moon.

The best place to begin a visit to the world's largest gypsum dunefield is at the visitor center. Located 15 miles southwest of Alamogordo on U. S. Highway 70-82, the center has good exhibits explaining the geology, history and plant and animal life of the region, and a 10-minute recorded interpretive slide program.

From the visitor center it is one-quarter mile to the entrance to the "heart of the dunes drive," allowing you to penetrate to the very center of the dunes without leaving your car. The entrance fee is \$1 for private vehicles or 50 cents per person for commercial buses. Along the eight-mile drive there are numbered posts where you can stop and see some of the natural attractions of the park and read about them in a leaflet with entries corresponding to each post.

Initially the drive parallels the edge of the dunefield, where the constantly advancing sand encounters the chaparral-covered floor of the Tularosa Basin. As the road enters the dunefield, the abundant plant life is left behind and the world suddenly reduces to sparkling white sand and deep blue sky. A closer look reveals a few hardy plants dotting the dunes, while short grasses and small bushes thrive in the flats between dunes, where the water table is often just below the surface and the soil is fairly fertile.






by
**EDWIN D.
ANTHONY**

*A virtual sea
of snow-white
sand awaits
the visitor to
White Sands
National
Monument.*

WHITE SANDS



Several plants, like the soaptree yucca, have met the challenge of the unstable and infertile white dunes in a remarkable way. As sand accumulates around the plant, the growth rate of the stem speeds up, in a desperate race for life, allowing the plant to remain firmly rooted in the fertile soil beneath the dune, while stretching its crown above the surface of the encroaching sand.

Some of the animals living in the dunes have also developed special means of survival in the white setting. The earless lizard and the Apache pocket mouse, for example, have evolved white protective coloration which makes them difficult to see, even for sharp-eyed Swainson's hawks and great horned owls which patrol the dunes day and night.

Don't spend much time looking for animals at White Sands, though. It's not that there are none living there, but, like most desert animals, they tend to be nocturnal. The most important exceptions are birds, of which there is a great variety, ranging from small songbirds to the

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desert cuckoo, or "roadrunner," and an occasional golden eagle.

Among the night creatures, small rodents are plentiful, including the pocket gopher and several species of mice and rats. Coyotes, kit foxes, skunks, jackrabbits and cottontails are the most common of the large animals. About a dozen types each of snakes and lizards are also present, but rarely seen. In terms of sheer number of species, the insects win hands-down, with over 370 identified to date.

Man is a newcomer in the dunes, as he has generally avoided them over the centuries. Pre-Columbian Pueblo Indian settlements, 19th-century cattle ranches and modern military installations have all been established on the doorstep of the white sand, but none of these activities seems to have directly involved the vast dunefield to any great extent.

So, until the last century, nature had little interference from man in the Tularosa Basin. Geologists believe that nature flooded the area on several occasions over a span of hundreds of millions of years with an arm of the sea reaching up from the Gulf of Mexico depositing enormous amounts of minerals, including a 650-foot-thick layer of gypsum, called the Yeso Formation. About 70 million years ago the Laramide Revolution began, a major upheaval of the entire Rocky Mountain region which produced a dome-like bulge in the present area of the Tularosa Basin. Some 10 million years ago two fault lines running north and south gave way and the land between began to sink, creating great cliffs on either side of the broad, flat basin and exposing the old sediments deposited by the sea to erosion. With no outlet to the ocean, precipitation in the highlands ran down into the basin, carrying tons of sediments, among them gypsum from the Yeso Formation. The water collected to form Lake Otero, a large prehistoric lake that reached its peak about 30,000 years ago. Then about 20,000 years ago the climate began to change from cold and wet to warm and dry, and Lake Otero started drying up, a process which took 15,000 years, leaving 2,000 feet of sediments on the floor of the basin, thoroughly saturated with gypsum.

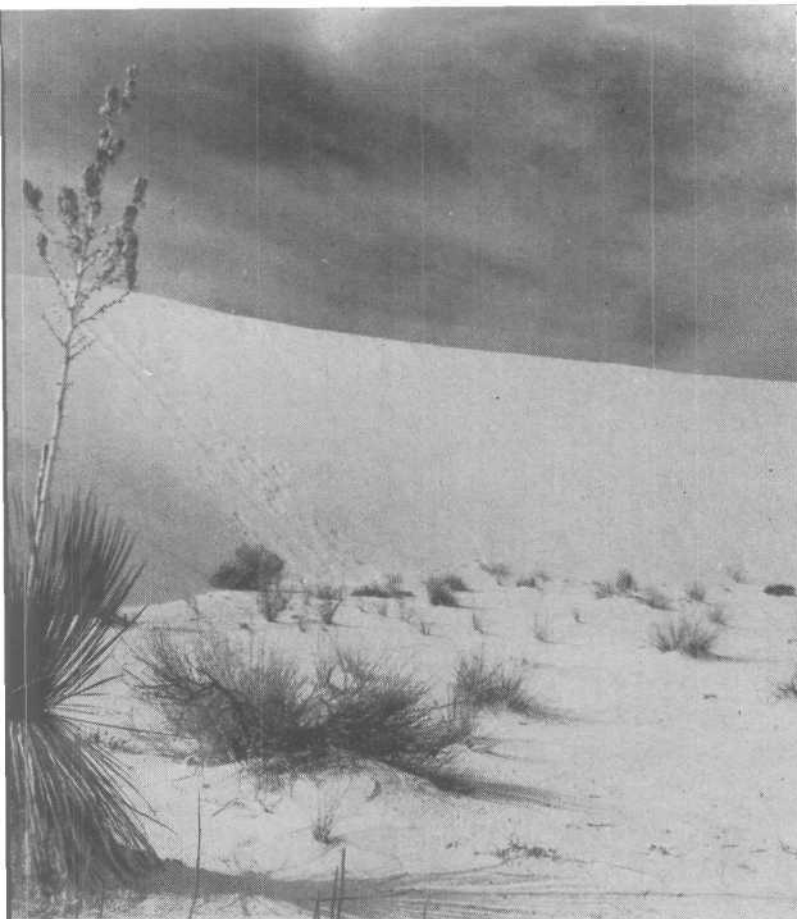
Water still accumulates after rainstorms in the lowest part of the basin of Lake Lucero, a remnant of old Lake Otero, where it soon evaporates, leaving

new deposits of dissolved gypsum and other minerals from the surrounding mountains encrusted on the barren lake bed. As the wind whistles across the dry bed of Lake Lucero, it neatly separates the gypsum particles from clays and other materials, sending the latter aloft high into the atmosphere, while the heavier gypsum grains flow along the ground until they strike an obstacle, like a plant or rock, where they begin to collect to form an embryonic dune of almost pure gypsum sand. Moving out in ranks from Lake Lucero and an adjoining alkali flat, the dunes march relentlessly toward the northeast, up to 30 feet per year, driven by the prevailing southwest winds. Two dozen millennia of this have left some 300 square miles of Tularosa Basin blanketed with glistening white sand dunes.

Since becoming a national monument in 1933, the once forbidding dunefield has been enjoyed by thousands. Most find it impossible to resist the urge to park next to an inviting dune, where a few seconds' climb puts them on top of the 30-foot-high mound with an unforgettable 360 degree view of a rolling white sand sea against an incredibly blue sky and high purple mountains.

Children and adults alike delight in scrambling up and down the dunes.





*Majestic
Soaptree Yucca,
New Mexico's
state flower,
stands ready to
challenge an
on-coming dune.*

Some attempt sledding down the steep lee sides on a motley array of craft, most with limited success in the soft sand. Many prefer a short walk to a quiet perch atop an untrammelled dune, where they may experience a type of peace and grand silence found in few places on Earth.

The National Park Service has provided a one-mile self-guided nature trail, called Big Dune Trail, with an accompanying pamphlet, keyed to numbered posts beside the path, identifying and explaining some of the distinctive features of the park. There are also regularly scheduled monthly auto caravans to Lake Lucero conducted by a park ranger, requiring reservations in advance. Access is via a military highway across the Army's White Sands Missile Range, along the base of the rugged San Andres Mountains. The scenery on the way is magnificent, and special treats of the three-quarter-mile hike down a sandy arroyo from the road to the lake bed include the ruins of the north unit of the old Lucero Ranch and spectacular beds of selenite, a beautiful reddish-brown crystallized form of gypsum found in gullies and along the shore of the dry lake. For dates and reservations, write to the Superintendent, Box 458, Alamogordo, New Mexico 88310, or call (505)437-1058.

No overnight facilities are available in the national monument, except for a back-country campsite requiring registration at the visitor center and a one-mile hike carrying all provisions. There are many moderately priced motels and a KOA campground in Alamogordo. The nearest public campgrounds are in Lincoln National Forest, 35 miles east in the Sacramento Mountains, and Aguirre Springs in the San Andres Mountains, 30 miles to the west.

White Sands National Monument can be enjoyed by young and old any time of year. The opportunities for hiking, photography and nature study are many and varied. Kids have no problem entertaining themselves, providing harried parents a welcome chance to catch up on some reading, sunbathing or napping. Picnic tables, fireplaces and comfort stations are located near the end of the heart of the dunes drive, but the only drinking water is at the visitor center. Driving off the road or parking areas is prohibited.

Because of its southern location and 4,000-foot altitude, the climate is generally moderate, but be prepared for hot summer days, an occasional cold spell in winter, and early spring gales. But mostly, be prepared to enjoy an enchantingly different desert adventure. □

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Seventeen Palms Oasis

by DICK BLOOMQUIST

WE HAVE NOW reached the halfway point on our desert Odyssey. Seventeen Palms, within the Anza-Borrego Desert State Park is an appropriate spot to mark the occasion, for it is one of the most alluring of California's palm oases. The little grove, long a focal point of lost mine lore and the romance of the desert, has happily retained the unspoiled solitude which gives life to legends. Sitting in the shade of the rustling palms on a warm winter's day, the wayfarer can easily conjure up the ghosts of Pegleg Smith and the old-time burro prospectors.

The oasis is growing, and today there are 29 Washingtonias — a dozen of them youngsters no more than 12 feet tall — at

"Seventeen" Palms. The trees form a living colonnade along the edge of the arroyo, taking advantage of moisture probably made available by fault action. Brackish water surfaces in one or two places on the right side of the grove. Stubbiness characterizes the veteran palms, which have trunk diameters of up to three feet; the tallest tree is between 30 and 35 feet in height. With the exception of four that have been burned, all the Washingtonias wear long, shaggy skirts.

Between two palms at the center of the oasis is a modern version of the old "prospectors' post office" — a wooden keg filled with the comments of visitors, some of whom leave jugs of water for later travelers who might be in need.

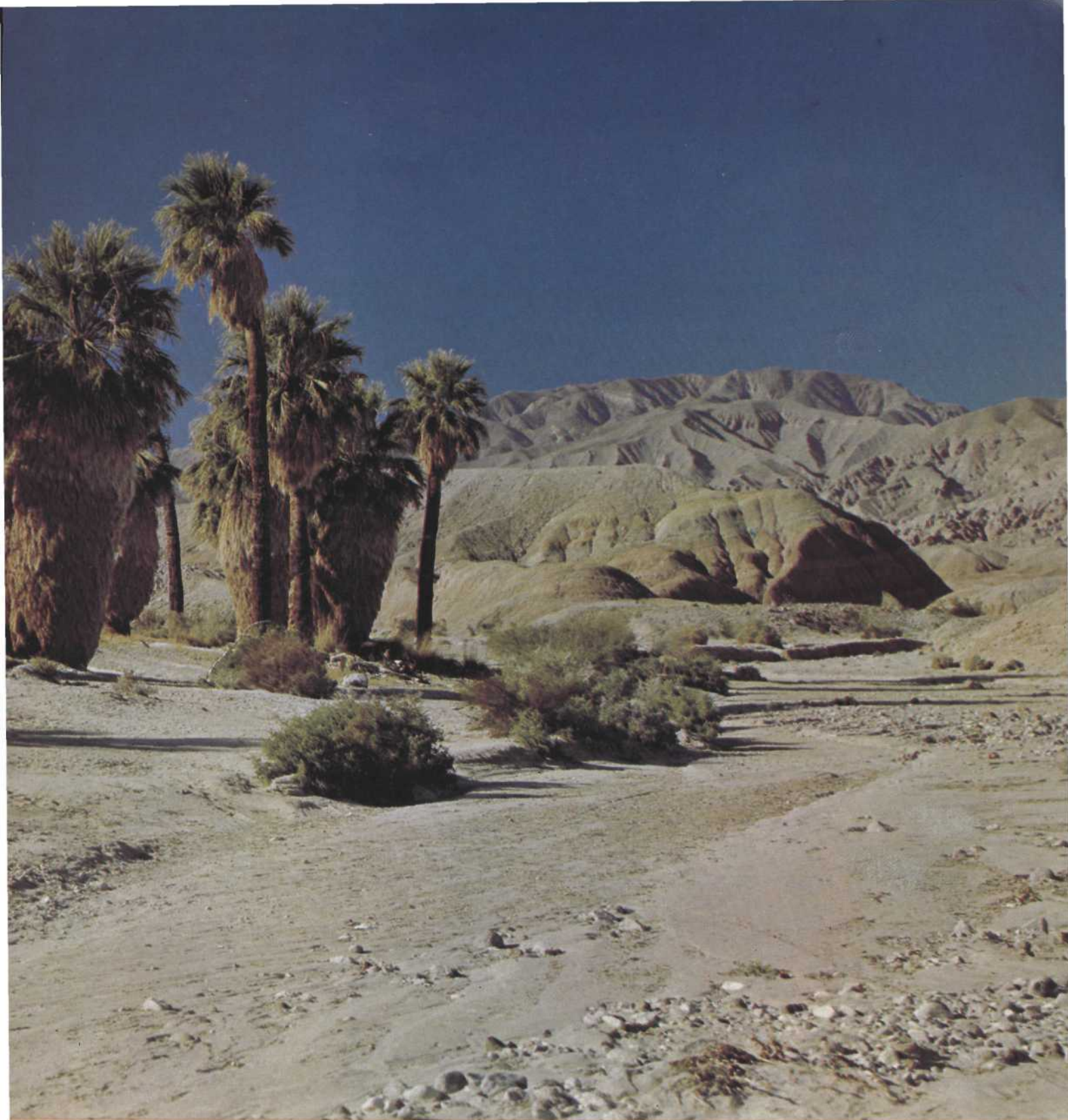
Fragments of Indian trails survive on the mesas near Seventeen Palms. Beginning in the late 1800's, prospectors — some of them seeking the celebrated Lost Pegleg — followed the same pathways to the palms. Several versions of the Pegleg legend exist, with variations in names, dates, and places, but many searchers believe the golden hoard lies in the Badlands of Borrego. In one telling of the tale, Thomas L. ("Pegleg") Smith, trapper, set out from the site of present-day Yuma for the coastal settlements of southern California. This was in 1829. Three days out from the Colorado, he found three hills covered with black gold, that is, gold coated with a black oxide. But Smith could never find the spot again.



Other lost mine stories have been linked with the Pegleg tale. There was the Yaqui Indian — for whom Yaqui Well along San Felipe Creek southwest of Seventeen Palms was named — who would disappear in the Badlands and return with gold. There was Jim Green, a black porter at the Julian and Banner hotels who became rich, supposedly by

Mileage Log

- 0.0 Christmas Circle in community of Borrego Springs. Drive east toward Salton Sea on San Diego County Road S22.
- 6.8 Pegleg Smith monument to left of road.
- 11.0 Enter Anza-Borrego Desert State Park.
- 15.8 Junction. Turn right off S22 onto Truckhaven Trail (dirt road). (For travelers coming from the east, this junction is 11 and one-half miles west of Salton City.)
- 16.0 Arroyo Salado Primitive Camp. **Four-wheel-drive advisable beyond campground.**
- 18.0 Junction. Truckhaven Trail turns left. Continue straight ahead (right) down Arroyo Salado.
- 19.5 Tributary wash. Turn right.
- 19.7 Seventeen Palms. Elevation 410 feet above sea level.



Color photo by George Service, Palm Desert, Calif.

following a trail that led him somewhere beyond Yaqui Well. There was the prospector who helped an Indian woman bury her husband near the Narrows on San Felipe Creek and was rewarded with gold. And there was the Indian woman who came out of the Badlands almost dead with thirst, but with several gold nuggets she had found on

three small hills.

While the Pegleg Mine is the best-known legend of the Badlands, it is by no means the only one. What of the Lost Ship of the Desert, the Spanish galleon stranded in the Salton Sink? What of the lost Indian emerald mine in the Santa Rosas? And what of the strange light seen in the Badlands, a light described

by some as a drifting "fireball" and by others as a lantern inside of, or held by, a gigantic skeleton? Prospectors have sworn it is old Pegleg himself, searching now in ghostly form for his long-lost gold.

Such are the will-o'-the-wisps that pervade Seventeen Palms, oasis of a thousand dreams. □

Bear Valley, California



A Bear Valley building [above], which is obviously near collapse, was identified by a local resident as a former hotel, "with four rooms upstairs and four rooms downstairs." Bear Valley's Bon Ton Saloon and a former boarding house [below] stand on Highway 49. One is abandoned, the other serves, today, as a restaurant. Photos by Edward Neal.



John C. Fremont was furious. In 1847 he had given his friend, Thomas O. Larkin, \$3,000 and precise instructions. Larkin was to buy, in Fremont's name, Rancho Santa Cruz, south of San Francisco Bay. The beautiful ranch, with its orchards and mature vineyards, was to be John and Jessie Fremont's permanent home. Instead, Larkin bought Rancho Santa Cruz for himself.

For Fremont, Larkin purchased a 45,000-acre tract of land in the foothills of the Sierra Nevada Mountains. Fremont's property was 100 miles from the closest settlement and was considered, by most, to be worthless. It was known as Rancho Las Mariposas.

Within two years, Fremont's anger had turned to joy and excitement. Gold had been discovered in the Sierra foothills and forty-niners, panning the streams of Rancho Las Mariposas, had found the sands rich with the precious metal.

In August of 1849 the source of the placer gold in the streams and rivers had been discovered. It was the first discovery of a vein of the fabulous Mother Lode. Named the Mariposa vein, it was on Fremont's land. Indeed, Fremont owned the richest ranch in California, and it had not one orchard, vineyard or head of livestock.

John C. Fremont had already earned fame and

public acclaim as an explorer of the American west and for his part in the conquest of California during the Mexican war. With wealth to go with his well known name he turned to politics. As an absentee-owner of the Mariposa mines he, in 1850, became one of the first Senators from the new State of California. In 1856, he was the Republican Party's very first nominee for the office of President of the United States.

Following his defeat as a candidate for President, Fremont realized that his absence from his property was harmful. Nearly all of his mining profits were being lost because of bad management. In 1857, John and Jessie Fremont decided to make the Mariposa ranch their home and to make Bear Valley, a small community on the ranch, headquarters for the Fremont empire.

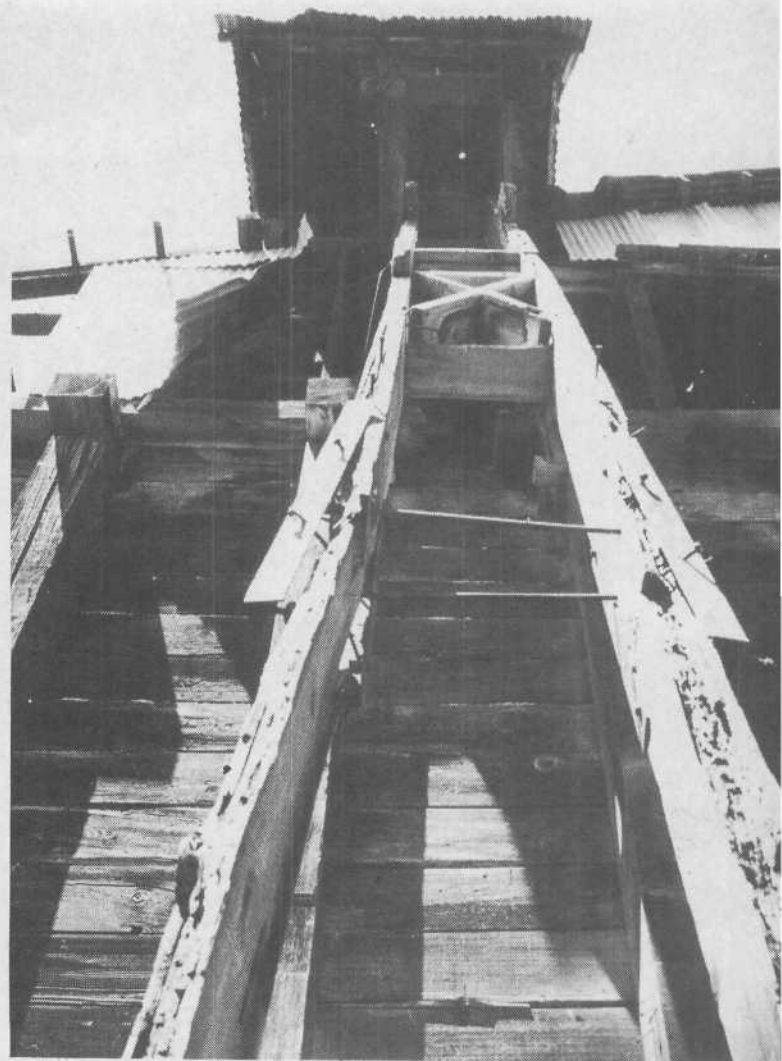
At Bear Valley the Fremonts seemed to try and create the kind of home and life they might have had at Rancho Santa Cruz. A magnificent residence, known locally as The White House, was built. It was staffed with French servants for Jessie and the children. A hotel was built, with lumber brought from the East around the Horn, to house the Fremont family guests. The population of Bear Valley, almost all Fremont employees, rose to nearly 3,000.

There were other towns on the ranch, too. To the north of Bear Valley was the community of Bagby, the site of the Fremont mills. To the south were Mt. Bullion (named for Jessie's father, Senator Thomas Benton, who was known as "Old Bullion") and Mt. Ophir, site of California's first private mint.

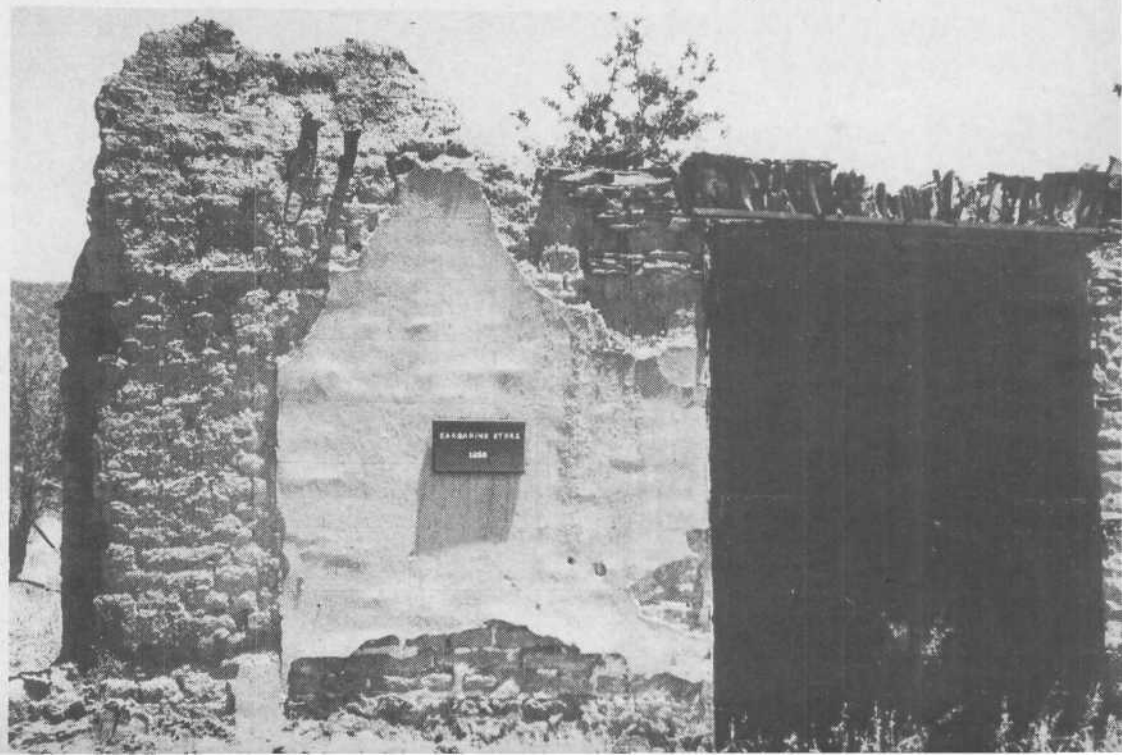
All was not well, though, with the Fremont empire. Huge overhead and tremendous family expenses seemed to take all of the mine profits. By 1863, Fremont decided that the time had come to sell. Rancho Las Mariposas, a \$3,000 "worthless" investment in 1847, sold for \$6 million just 16 years later. Yet, Fremont is said to have sold the property for a small fraction of its true worth.

Today, both the White House and the Oso House, Fremont's sumptuous guest hotel, are gone. The mills at Bagby are under the waters of Lake McClure, and the old mint at Mt. Ophir is only a crumbling stone foundation. Bear Valley still, though, has a number of interesting structures and ruins that date from gold mining days, and a few miles north of town, you can see the remains of the Pine Tree Mine, one of John C. Fremont's most profitable holdings.

Bear Valley is located on California State Highway 49, 12 miles north of Mariposa and 50 miles northeast of Merced. □



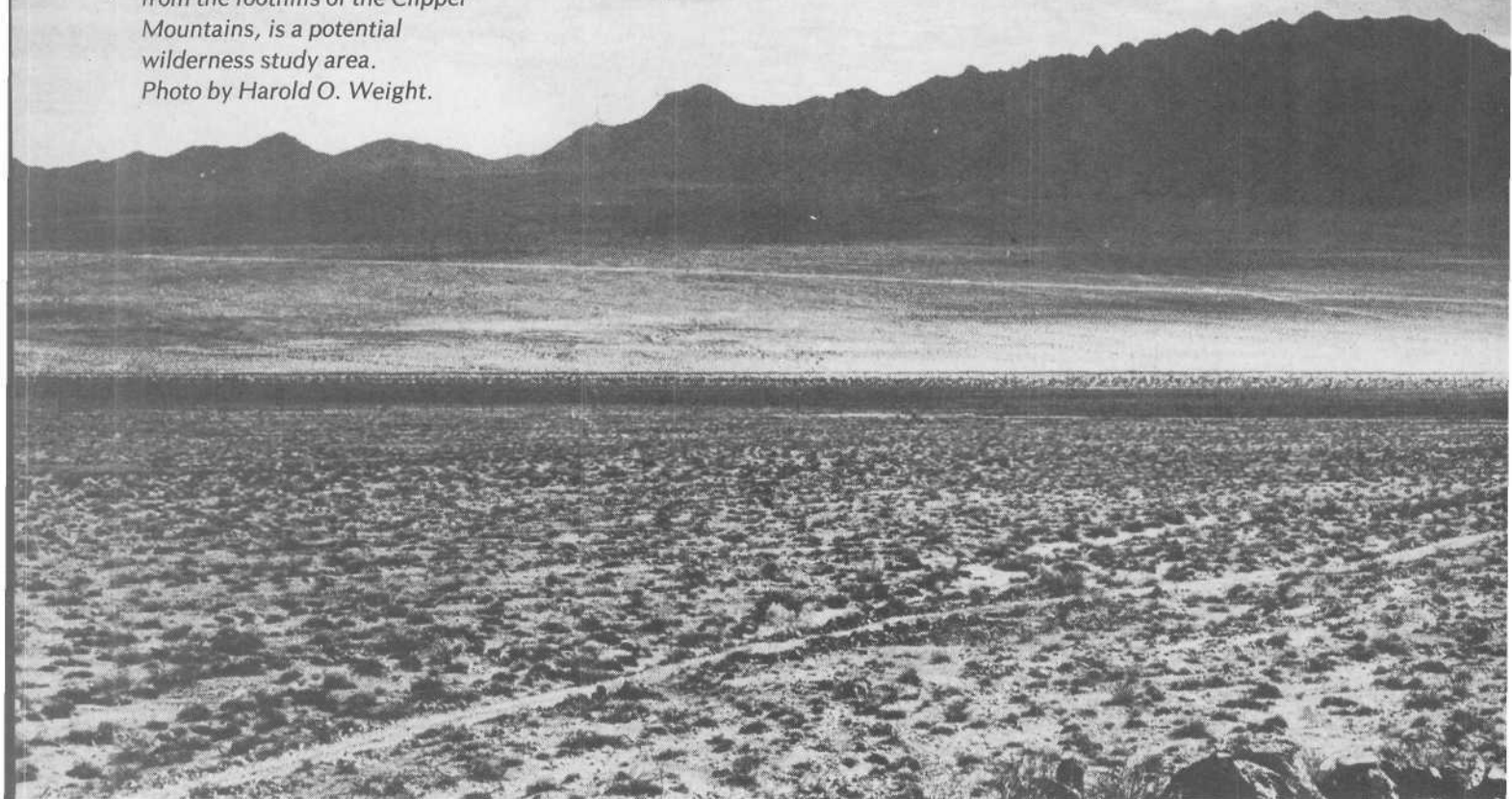
What appears to have once been a ladder climbs the wall of one of the structures [above] at the Pine Tree Mine, one of John C. Fremont's most important holdings. Photo by Edward Neal. All that remains [below] of the Garbarino Store, Bear Valley's "General Store" during the gold rush days, is a weathered adobe wall and an iron door. Photo by Leonard Hunsicker.



DESERT WILDERNESS LATEST BAT

*Old Woman Mountains,
from the foothills of the Clipper
Mountains, is a potential
wilderness study area.*

Photo by Harold O. Weight.



THE COMBAT over the future use and protection of the California desert continues, mainly among the same protagonists as before—environmentalists of all types on one side and advocates of multiple use on the other, with the U.S. Bureau of Land Management still in its unwanted role as the umpire, or more accurately, the federal agency in the middle.

The field of battle is still the 12.5 million acres of desert in the public domain, also known by BLM as National Resource Lands, but the target this time isn't the Desert Plan alone, but also includes the desert portion of the all-encompassing National Wilderness System. Desert Plan and Desert Wilderness lands are all part of the 12.5 million acres of California desert administered by

the U.S. Bureau of Land Management.

Where the difference comes, however, is contained in the legalistic jungle of the 1964 federal Wilderness Act, particularly in Section 2(c). Therein are the high-sounding and sincere words of human philosophy that so often are difficult to translate into workable rules and regulations. For example:

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."

To spell out the lofty language, Section 2(c) sets forth four conditions under which federal land meets the criteria set forth for wilderness. To paraphrase the

act, the conditions are generally as follows:

First, land which generally appears to be affected primarily by natural forces, with man's impact virtually absent.

Second, land that offers ample opportunities for solitude, primitive or unconfined types of recreation.

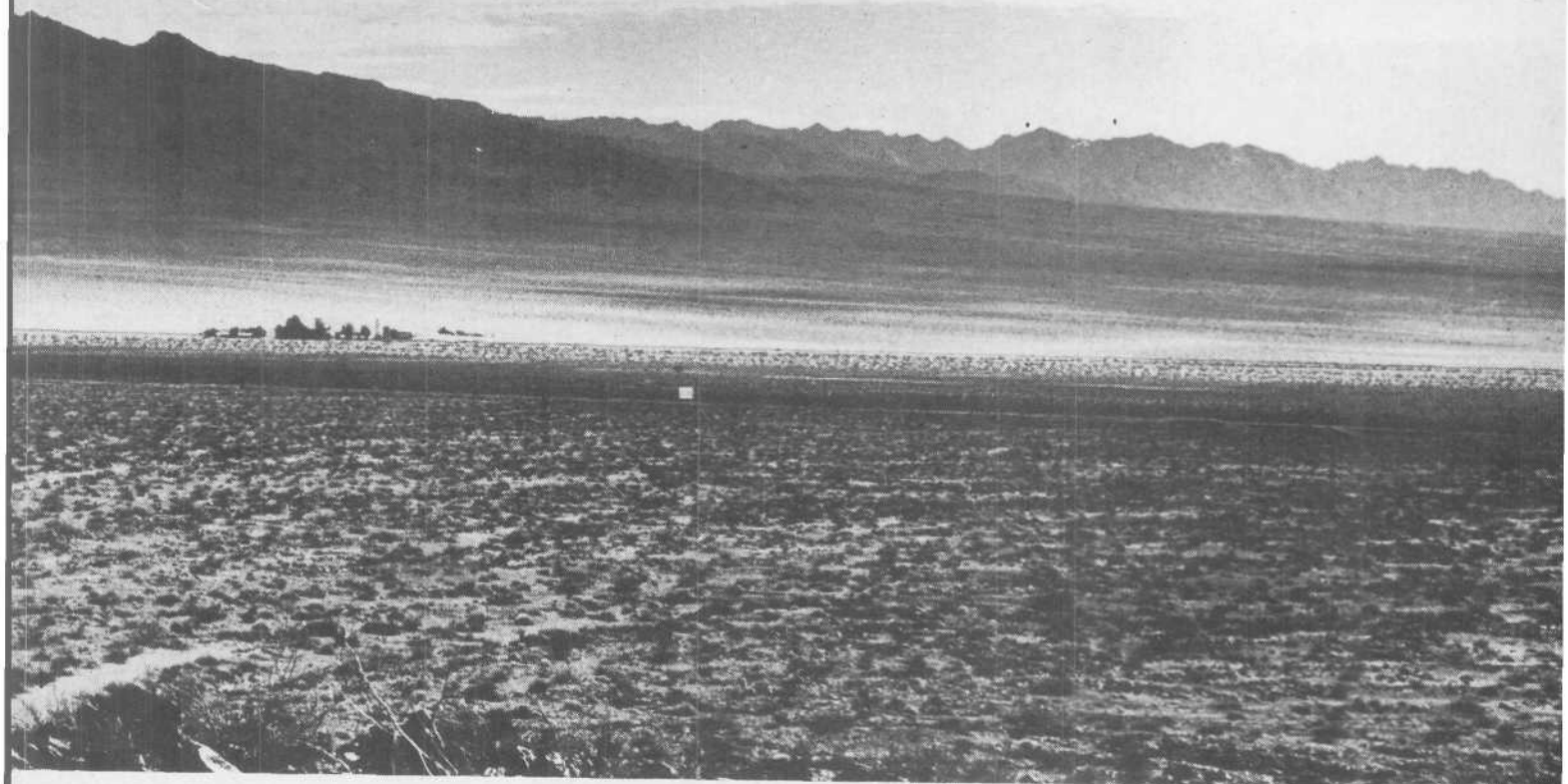
Third, plots of at least 5,000 acres in size, OR of sufficient size to make its preservation practicable, and its use therefore.

Fourth, sites that may also contain ecological, geological or other features of scientific, educational, scenic or historical value.

These conditions also share another characteristic that has caused considerable semantics debate during initial public meetings BLM has been holding

■ ■ ■ TLEGROUND FOR BLM

by BILL JENNINGS



this spring and early summer concerning implementation of wilderness areas, namely, what is a road?

In the interim period of the Desert Plan's development, BLM, its friends and foes alike have been tied into a road definition that recognizes the common qualities of California desert roads as tracks and trails that have evolved into established routes due to heavy or continuous travel over the years. The Wilderness Act—as implemented in 1976 by another federal law commonly called FLPMA, makes it more precise. FLPMA stands for: Federal Land Policy and Management Act of 1976.

A road, according to these laws, is:
“... an access route which has been improved and maintained by using hand or power machinery or tools to insure re-

latively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.”

This precise definition, which at least has the merits of being clear and incapable of being misunderstood, eliminates many hundreds of miles of unimproved desert roadways which are found on U.S. topographical maps, and also on BLM maps and those supplied to the public by a host of other agencies.

The problem, therefore, is that wilderness areas may now be carved out of old mining districts, for example, because their roads do not meet the definition standards, and, in addition, such areas are covered under the fourth criterion of Section 2(c) of the Wilderness Act because they contain “features of educational, scenic or historical value.”

By definition, under the Wilderness Act, uses permitted within wilderness areas will remain somewhat the same as under previous designation. That is, if there are existing foot and equestrian trails, entry will be permitted for horsemen and hikers. If there are previously existing primitive or improved campsites, they may be used under wilderness classification. The major restriction will be against motorized vehicles, just as it is now in wilderness lands administered by the U.S. Forest Service and the National Park Service.

During the interim inventory and study period, uses currently permitted may continue, provided they do not interfere with the area's potential wilderness status.

Although the general criteria for con-

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*The Turtle Mountains are
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sideration as a wilderness area includes
a size of 5,000 acres or more, smaller
tracts, if considered roadless by defini-
tion and provided they meet the other
criteria, may be listed as candidates for
wilderness status.

Thus far, the BLM effort to inventory
the 12.5 million acres of California Na-
tional Resource Land has been in con-
junction with the public land users,
through a series of sometimes stormy,
sometimes unproductive but always
interesting public meetings. Sites have
included Bishop, Indio, Anaheim, Bar-
stow, Riverside, Ridgecrest, Baker, Los
Angeles, Bakersfield and even San Fran-
cisco. Attendance has ranged from
packed houses to a few curious specta-
tors but the interchange of ideas, at least
opinions, has always been brisk.

As the final version of the Desert Plan,
the Wilderness Plan must be in a final
form and ready for consideration by Con-
gress by September 30, 1980.

Yet this year, another period of public
participation is ahead, from August 12
through September 30—after the BLM
staff prepares an interim inventory re-
port packet. This will be mailed to all in-
dividuals requesting them from the
agency's Riverside district office, 1695

Spruce Street, Riverside, California
92507, or by telephoning there, Area
Code 714 787-1462. The same material is
also available at the Bakersfield district
office, Federal Bldg., Room 311, 800
Truxton Avenue, Bakersfield, California
93301. The phone number there is Area
Code 805 861-4191.

The next major public meeting on the
provisions yet this year will be held by
BLM's California Desert Conservation
Area Advisory Committee in San Bernar-
dino on September 27-28. Site and times
for the meetings may be learned by call-
ing either the Riverside or Bakersfield
BLM offices.

After that meeting a 60-day public re-
view period will be held from November
1 through December 31. Additional
public meetings are planned during that
period, at Anaheim, November 1, and in
Barstow on November 2.

By January 31, 1979, the bureau will
designate Wilderness Study Areas for
the California desert—but bear in mind,
these recommendations will not have the
force of law until much later, after pro-
tracted examination, public meetings,
evaluation and publication of a draft of



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candidates for wilderness classification other than vaguely cross-hatched areas on preliminary maps. Their impact is further minimized by being designated as only "potential" sites.

In the Inyo-Kern counties northern area of the California Desert Plan these range from pockets in the White Mountains on the Nevada border to many areas on the perimeters of Death Valley National Monument.

Farther south, in the San Bernardino-Riverside-Imperial counties southern half of the desert region under study, sites range from Red Mountain, the El Paso range and southerly almost to the Mexican border, in the Fish Creek and Coyote Mountains adjoining Anza-Borrego Desert State Park.

Interestingly, several of these "potential" sites—designated as roadless areas and areas of high potential wilderness value—are close to, or actually include previously developed BLM campground and recreation areas.

The battle goes on, with several years of high anxiety yet ahead for adherents of both basic points of view—protection or preservation and multiple use. □



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the Desert Plan, January 1, 1980. All of this is preliminary to the actions of Congress.

It has taken Congress several years to act on merely the first wave of recommended wilderness area designations submitted to it by the National Park Service, the U.S. Forest Service, Fish and Wildlife Service and other federal agencies which serve as custodians of federal public domain land. The backlog of reviews, reassessments and rejections has put this phase of the overall process some years behind schedule—meaning the BLM input is a long way from becoming law.

In the meantime, uses of California desert land continue to be examined and approved by BLM on an individual basis. This means some lands will remain open for multiple use at least through 1980, even though they are slated to become wilderness. If that doesn't confuse you, stick around, it may become even funnier.

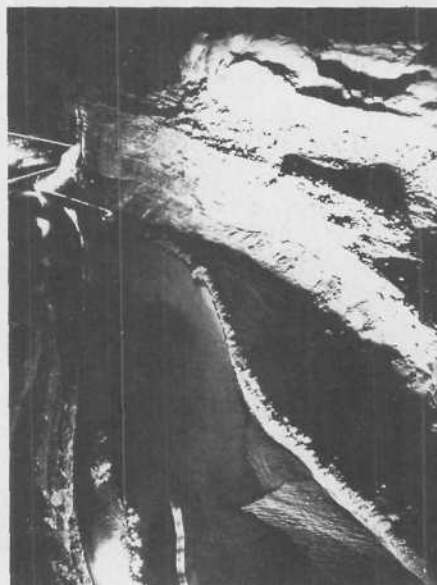
Pending the accumulated input from the initial workshop meetings held in May, BLM staff members are understandably reluctant to designate their

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by MARY FRANCES STRONG

photos by Jerry Strong

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BORN EONS ago in the glacial heights of California's mighty Sierra-Nevada Range, the Wakopee River was but a mere stream cascading down the great mountain's eastern slope. As it hurtled southward, numerous streams contributed to its size until the designation "river" was deserving. This additional volume gave the river power. It now began cutting, grinding and sweeping away any material in its path until it had carved a magnificent gorge before reaching the broad basin between the Sierra-Nevadas and the White Mountains.

Here, the gradient diminished and the topography changed. The river meandered almost aimlessly along a 75-mile course before entering a lake at the southern end of the basin. Verdant meadows surrounded the river; trees lined its banks and game flourished. Prehistoric Indians came to hunt, then settled when it seemed life might be less harsh in this environment.

It was a time of abundant moisture and eventually Lake Pacheta was over 200 feet deep and occupied a surface of some 240 square miles. Waves lapped the base of the imposing mountains that flanked her east and west shores. When filled, the overflow drained south then easterly and finally a chain of three

beautiful desert lakes formed in the deep basins of Searles, Panamint and Death Valleys.

Gradually, the glaciers melted and a climatic change began which brought periods of abundant moisture followed by periods of drought. The lakes in Panamint, Searles and Death Valley desiccated and large accumulations of saline minerals were left behind in the latter two. While Lake Pacheta diminished in size, it remained an entity, thanks to the flow of the Wakopee River.

During the last 4,000 years, the brines of Owens Lake have concentrated through evaporation and a sizable, crystalline body of commercial importance has been deposited. As expected, Pacheta Lake and the Wakobee River have played important roles in the history and development of the region.

Today, one name "Owens" is applied to the basin, river and lake. Known collectively as the Owens Valley Region, the area has become a year-round recreational playground. Almost any outdoor hobby can be practiced here from active sports to passive bird-watching. As a result, the Owens Valley and its immediate environs play host to hundreds of thousands of visitors annually. Yet, because of the immensity of the valley, it does not appear to be crowded.

A great deal has been written about the Valley's recreational pleasures between Lone Pine and Bishop. Lesser known, perhaps, but of considerable interest to those who enjoy visiting historical sites, is Lake Pacheta—now known as Owens Lake. John C. Fremont encoun-

*Sierra reflections.
Owens Lake and
Sierra Nevada east side.
Photo by
David Muench,
Santa Barbara, Calif.*



Keeler was "end-of-line" for the Carson & Colorado Railroad. Its townfolk were mighty proud of their two-story station. The large chunk of dolomite at right center embraces an historical marker.

tered this large body of water during his third expedition in 1845-46. Not knowing, and possibly not caring what the Indians called the lake, he promptly named it "Owens" in honor of expedition member Captain Richard Owens.

Fremont's party was not the first through Owens Valley. While searching for a new route from Salt Lake City to California, Captain Joseph Reddeford Walker camped at the southwestern edge of the lake in the spring of 1834. An historical marker at the junction of High-

ways 395 and 160, just south of Olancha, commemorates this first visit by a white man. Peter Skene Ogden and Jedidiah Smith were also early visitors.

A non-stop, circle tour of Owens Lake could be made in just a few hours but such a superficial sampling would do little to satisfy the devotee of the past. The rewards received when following historical trails take time to reap. Exploring the sites; conjuring visions of "how it was;" savoring the magnificent scenery, as well as admiring the "remains" are

the necessary ingredients for the enjoyment of such a tour. A little knowledge of the region's history is also important.

The trails established by Ogden, Smith, Walker and Fremont were soon utilized by many white men who headed for distant bonanzas. Some liked what they saw and returned. Others told of the beautiful valley with its lush meadows and ample water. As a result, a few cattlemen came with their herds. One of them, A. Van Fleet, erected the first house in 1861—a stone and sod cabin. Other ranchers soon followed.

The permanent residence of white men did not set well with some of the Indians and a "war of sorts" began. Renegade Indians raided mines and isolated ranches and it became necessary to station a Company of the U. S. Cavalry near what is now Independence. The uprising was eventually quelled, but not before there was wanton bloodshed by both sides. With the Valley proclaimed "safe," homesteaders and prospectors began arriving en masse. Ore bodies were discovered—towns sprang up and the settling of Owens Valley was underway.

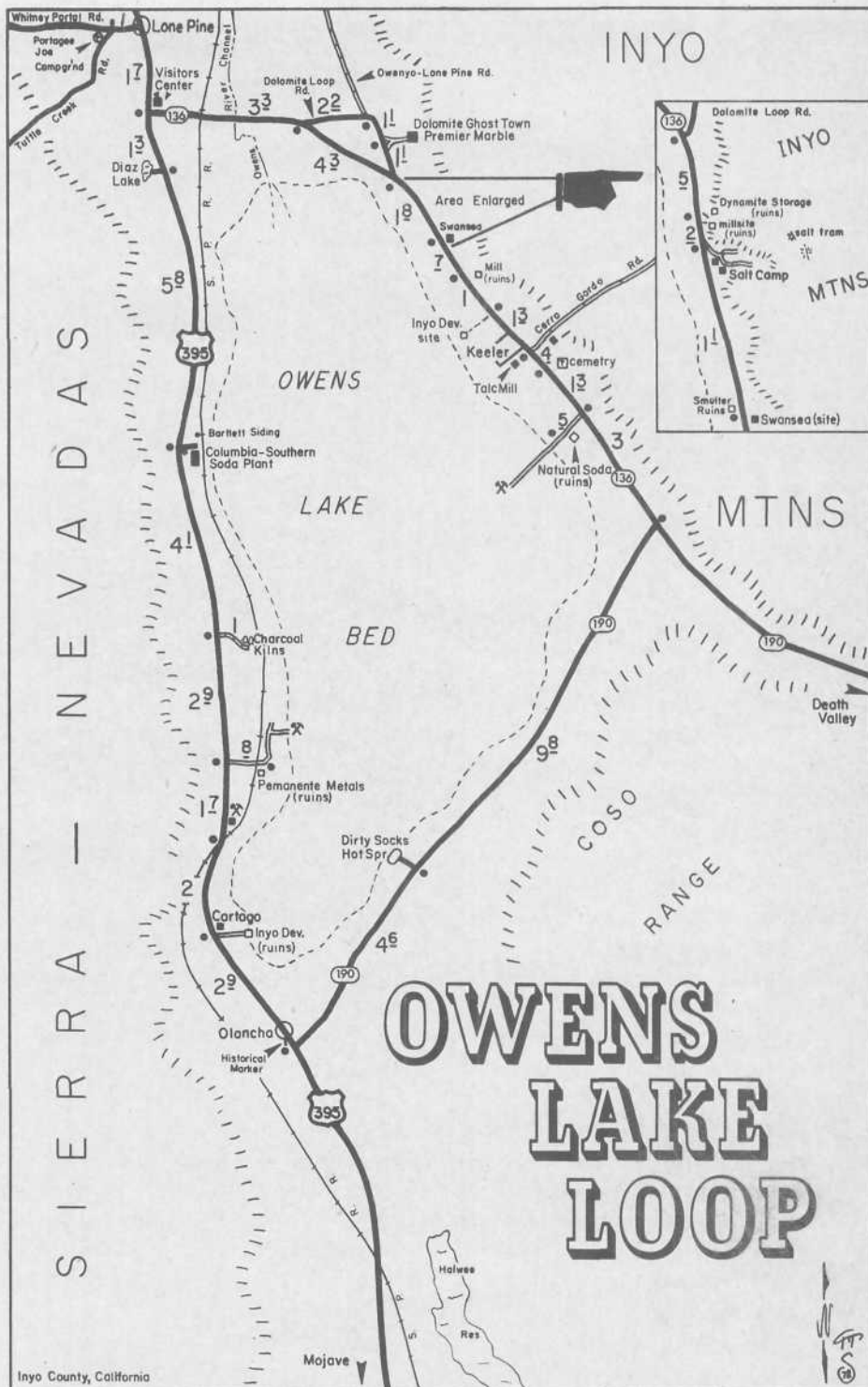
The region around Owens Lake remained in its pristine state, even though hundreds of people hurriedly traversed the narrow shelf of land separating lake and mountains. Lone Pine, on the northwest, was the nearest settlement except for the Shoshonean village of "Olanches" on the lake's southwestern shore. This tranquility was due for an abrupt change when Pablo Flores and two companions discovered rich silver-lead ore near the crest of the Inyo Mountains in 1865.

The Mexicans filed claims and were soon smelting exceptionally rich ore in crude rock ovens called "vesos." When news of the strike reached Virginia City, Nevada, the stampede was on. In a few



The C&C Railroad provided much needed transportation for miners and ranchers. Operations ceased in 1960 and all narrow-gauge track was removed except this short section at Dolomite Siding.

On the "Fat Hill," the ruthless, high-handed methods used by Belfast were not being tolerated. Owens Valley Silver-Lead Company sued when Belfast delib-



The 1880s brought about considerable development in the Owens Lake Region. This was largely due to the construction of the Carson & Colorado Railroad, scheduled to run between Mound

This news was warmly received by the Valley's merchants, farmers and miners. Not only would freight charges be less, delivery and pickup would almost be to their doors. "End-of-line" was later



One of several buildings remaining at the Salt Camp north of Swansea has stood the ravages of time and climate quite well. This was the terminal for the tramway that hauled salt over the mountains from Saline Valley.

changed to Hawley (now Keeler) on the east side of Owens Lake. The "Slim Princess," as the little, narrow-gauge line was affectionately known, successfully served the many communities and mines along her route for over three-quarters of a century.

About this same time, the Inyo Marble Company began developing an immense dolomite deposit along the base of the Inyo Mountains five miles north of Keeler. State Mineralogist Henry Hanks, in his 1889 Report, described the material as dolomite of the highest quality which, when freshly broken, was as pure and white as the famed Carrara Marble of Italy. Some of the first "Inyo Marble" mined was used in the construction of Sharon's Gate in San Francisco's Golden Gate Park. More recently, a million square feet of Inyo Marble was used in the floors of Los Angeles International Airport. It was also used in the famous Hollywood Boulevard terrazzo sidewalk where the names of stars are cast in bronze and placed on a surface of Inyo Marble.

Owens Lake now came under the scrutiny of miners interested in obtaining the minerals from its brine. The lake bed covered an area of 97.2 square miles and consisted of a porous, brine-filled, crystal bed about nine feet thick. It was rich in soda and potash.

The Inyo Development Company was the first to exploit the brines in 1885. Its evaporative ponds and plant were located a mile north of Keeler. Soda and potash were harvested. From 20 to 150 men

were employed until 1920. At that time, operations ceased when the brine became so concentrated that only trona, instead of ash, was precipitated.

An ambitious project was undertaken in 1911 to recover salt from a dry lake in Saline Valley. To mine and market the salt profitably, a proposal to stretch a tramway over the 9,000-foot crest of the Inyo Mountains was conceived. There were many skeptics but work began. Two years later, 13 miles of steel cable, carrying an ore bucket every minute, was in operation and hauling up to 20 tons of salt per hour. At the time, the new salt tram was not only the world's longest but had the highest lift.

Four stations along the tram were equipped to control the electrically driven, traction ropes which supplied the thrust for each bucket's two-hour trip. Operators were comfortably housed at each station. A sizable camp was established at the "discharge terminal," one mile north of old Swansea. Here, the salt was crushed before being loaded onto railroad cars for shipment.

Unfortunately, many problems were encountered. Two years later, mining ceased and the tram shut down. During the next 40 years, salt was mined intermittently by several companies. The last was Saline Valley Development Company, which stockpiled about 2,000 tons of salt in 1954.

During 1917, Natural Soda Products established a large plant two miles south of Keeler. Using a more sophisticated method than Inyo Development, 120 tons

of dense soda ash were produced daily. A sizable quantity of this was shipped to Japan. There was also a yearly production of 10,000 tons of trona.

A standard-gauge railroad, Southern Pacific's Jawbone Line, was completed in 1917 along the western shores of Owens Lake between Owenyo and Mojave. Inyo Chemical Company quickly established a soda plant on the west shore and operated until 1932. At the southern edge of the lake, California Alkali Company erected a plant at Cartago. Seven years later it sold out to Inyo Chemical. The plant was enlarged and a camp was built to house the 100 men, and their families, who were employed.

Several other companies operated along the western shores from time to time. Permanente Metals had a plant at Marilyn Siding and Pacific Alkali set up shop at Bartlett Siding in 1929. The latter employed a new process for the recovery of soda ash. Fifteen years later, Columbia-Southern took over the Bartlett operation. Research improved the process and a fine, modern plant was built. It operated successfully until 1966—the last of the active mines on Owens Lake.

A 10-inch rain on December 6, 1966, resulted in a 22-inch accumulation of water on the lake bed. Columbia-Southern's ponds and salt beds were so diluted it was no longer feasible to operate profitably. Once again, Nature had defeated the best laid plans of men.

We talked with Wally Dugan, Maintenance Superintendent, when he was overseeing the dismantlement of the plant. At that time, 1968, the company planned to move all equipment and return the site to its natural state. He also told us rockhounds would be able to look for crystals on the old ponds when the plant was gone. Evidently, the company changed its plans, as the plant and office buildings still remain at the site.

Due to the railroad, Cerro Gordo, the saline mines on the lake, numerous mines in the surrounding area, as well as a talc mill, the little settlement of Keeler (formerly Hawley) remained a busy

supply center, while many of her competitors became "ghosts." Loss of the railroad in 1960 was a tough blow for Keeler. Nevertheless, her residents are tenacious and the old town lives on.

"Touring Owens Lake" will take you to the former sites of mines, camps, towns and historical points of interest around the lakeshore. Where you begin the tour will probably depend upon the direction from which you came to the region.

Along the eastern shore, Premier Marble now owns and operates the Inyo Marble deposits. They have preserved some of the original buildings from the ghost town of "Dolomite." In fact, their office is housed in one of the old buildings. They have always welcomed visitors but be sure to obtain permission to browse around the old town. The site is very photogenic and has been used as the setting for a number of movies including "Nevada Smith," "Oil for the Lamps of China" and "How the West Was Won."

As you drive south on Highway 136 (see map), watch for rock ruins on the hillside to the left. They blend into the background and are difficult to see. This was a temporary, dynamite storage site during the construction of the railroad. The ruins of a former mill site can be seen on the opposite side of the hill.

Farther south, five buildings in various stages of collapse remain at Salt Camp. Park near the base of the hills and look up on the crest. You will see one of the few remaining salt tram towers. This location makes a good overnight campsite offering a fine view of the lake and Sierra-Nevadas.

The site of Swansea is privately owned and one of the original buildings is used as a residence. Across the highway, an historical marker identifies the brick ruins of Swansea Smelter.

There is little to indicate the site of the first saline mining on Owens Lake—Inyo Development's operation. A few foundations lie almost hidden in the sand.

The talc mill at Keeler was operating on a small scale when we were there last summer. Browse around and feel the charm of this 96-year-old community. Note the former prestigious "Keeler Swimming Club" on Maud Street and the little church on Old State Highway. These, and the two-story railroad station on Malone Street in the middle of town,



Only a few graves are readily visible at the old Keeler Cemetery. Many other lie unmarked among the sand and brush.

will warrant capture by your camera's eye.

Across the highway from Keeler, a graded road leads up the mountains to old Cerro Gordo and its silent mines. At one time, visitors were permitted to browse around for a fee. However, I haven't received a reply to my inquiry regarding its status. The road to Cerro Gordo is the original toll route Belfast built. It is very steep and many stock cars have difficulty making it to the top. Inquire at Keeler about road conditions and status. The tram has been dismantled but some of the buildings remain near the highway.

Less than a half-mile south of Keeler, the old cemetery lies among sand dunes. It is signed and contains a number of graves, but only a few are marked.

Farther south, the former site of Natural Soda Products is readily visible; though the plant has been dismantled. A huge dump, numerous foundations and weathered lumber cover the area. A road leads onto the lake to a small mining operation. The assorted rubble here is fascinating and "browsing" is great fun.

Follow Highway 190 west across the southern end of Owens Lake and you will be traveling, in part, the route originally used by the freight wagons. Along the way, you will be treated to a majestic, two-fold view—the great expanse of lake bed and mighty mountains on both sides. Stop at Dirty Socks Spring. If your bones are weary, you will enjoy a dip in the mineral pool. The campground and

pool (no fee) are maintained by Inyo County who, I am sorry to say, are not doing a very good job. I hope the area has been cleaned since we were there.

The small community of Olancho, at the junction of Highways 395 and 190, has several gas stations, a post office and well-stocked market. This area was the site of the Shoshonean village of "Olanches." Nearby, we came across an Indian chipping ground. There is other evidence of early Indian occupancy on the shores of Owens Lake, such as campsites and petroglyphs. Artifact collecting is not permitted under the "Antiquities Law." This law is now being strictly enforced.

North on Highway 395 at Cartago, the ruins of Inyo Development Company's operation lie east of the little settlement. Sodium bicarbonate, sodium carbonate (soda ash) and crude trona were mined here. The site, with its many buildings, is very picturesque. It is private property and permission to visit must be obtained from the caretaker.

Farther north, at Marilyn Siding, lie the gigantic concrete ruins of Permanente Metals Corporation. This location is on a high bench above the lake bed and offers a fine view and interesting "browsing" area.

Continuing toward Lone Pine on Highway 395, an historical site, former mine and a recreation area are of interest. The two charcoal kilns used to supply fuel to Cerro Gordo and other smelters lie a

Continued on page 39

*An overhanging ledge
on the cliff face high above
the Escalante River protects
an 800-year-old Anasazi granary
from the elements.*

Anasazi Indian Village

by BETTY SHANNON

THE ANASAZI Indian Village Historical Monument is far from the beaten path. But this little gem of a museum and state park is well worth the side trip necessary to visit it.

It is located in the tiny farming community of Boulder, Utah, some 75 miles east of Bryce Canyon. State Route 12 virtually ends at the museum's doorstep. While there are two dirt roads which continue on beyond Boulder eventually to connect with other highways, neither can be considered an all-year, all-vehicle route.

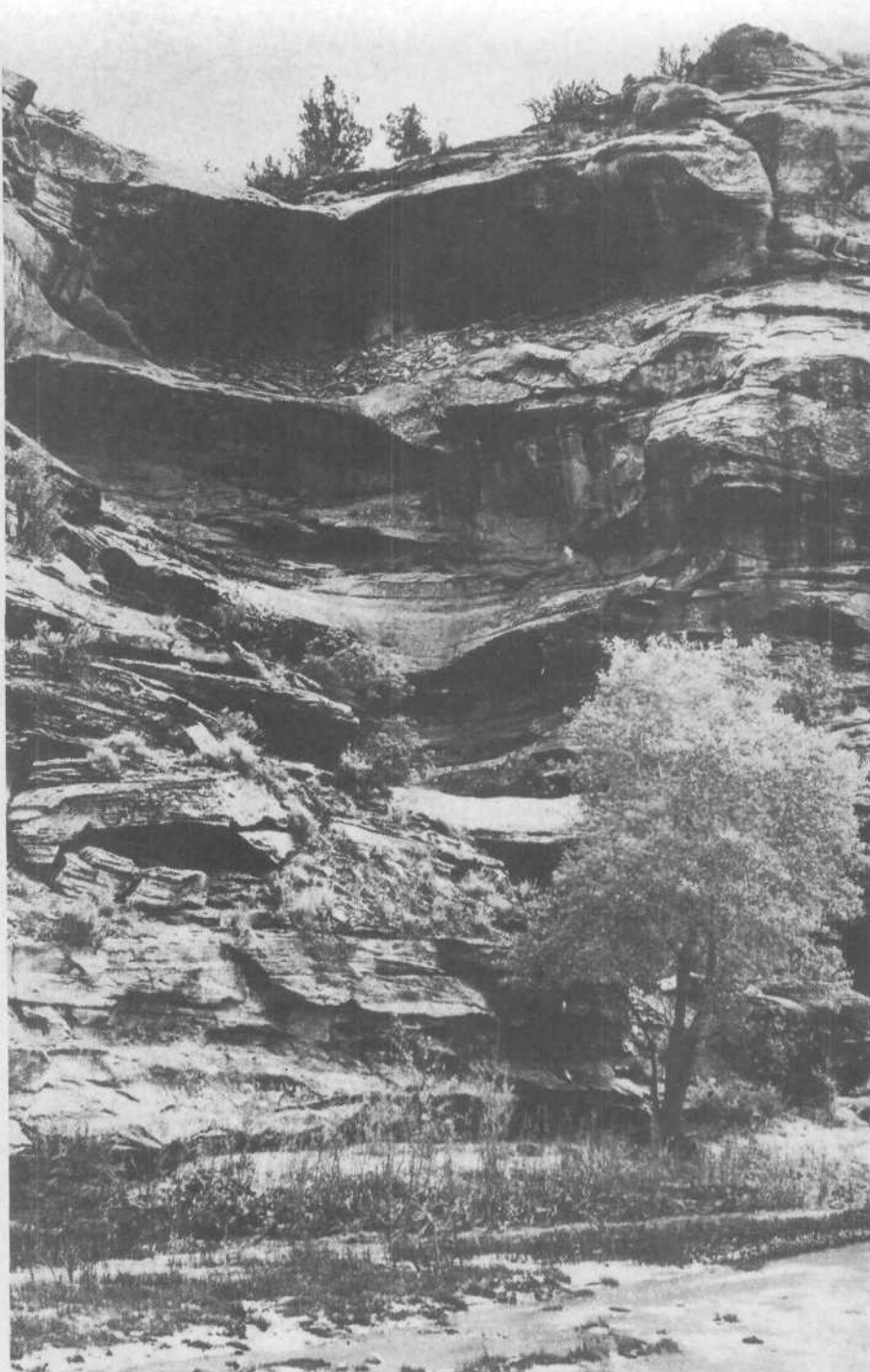
The park, which is the first in Utah dedicated to preserving an archeological ruin, occupies the site of the largest known Anasazi village west of the Colorado River. The Anasazis, or Ancient Ones, were ancestors of the Pueblos. At one time these people were spread throughout the vast area known as the Four Corners, where Utah, Arizona,

New Mexico and Colorado join.

The village at Boulder is believed to have been in existence for approximately 150 years — from A.D. 1050 to 1200. It probably served a maximum population of 200. The site seems ideal for the semisedentary Anasazi way of life. Streams flowed from the nearby Aquarius Plateau. Crops of corn, beans and squash flourished in the fertile soil of the open valley. Small game could be hunted in the immediate vicinity; large animals such as deer and mountain sheep roamed the canyons and plateaus of the surrounding area. Wood and stones were readily available for building materials. Clay, plant fibers, and

other natural resources also were handy and contributed to the villagers' daily needs.

All of which raises the inevitable question. Why did the Anasazis abandon the settlement? As with other Anasazi sites, the possibility of long term drought or a change in the growing season cannot be discounted. However, archeologists have uncovered evidence at this site indicating that the village was razed by a fire which also killed many of its inhabitants. Whether or not the settlement was deliberately destroyed, either by its occupants or outsiders, remains unanswered. Whatever happened, the survivors never returned.



The village was excavated by University of Utah archeologists in 1958 and 1959. The following year the site was designated a state park. The modern, sandstone structure which houses the museum exhibits was completed in 1970. One Anasazi dwelling has been reconstructed on the village site. A self-guiding trail winds throughout the site, which, to protect it, was reburied after the initial excavation. In the future, when funds become available, the village will be re-excavated and stabilized. In the meantime, a diorama display in the museum depicts the village and its inhabitants at the height of its development.

The museum is open all year. Hours are 8 to 5. Picnickers are welcome but overnight camping is not permitted. The Bureau of Land Management maintains an excellent campground along Calf Creek, about 12 miles west of Boulder.

Before the state park was established, Boulder's main claim to distinction was the fact that it was the last outpost in the U.S. to receive mail delivery by mule train. Happily, for those seeking a glimpse of the slow, pastoral life of generations past, little has changed. There are but two general stores with gas pumps, and as an amenity for tourists, one home offers lodging and home cooked meals.

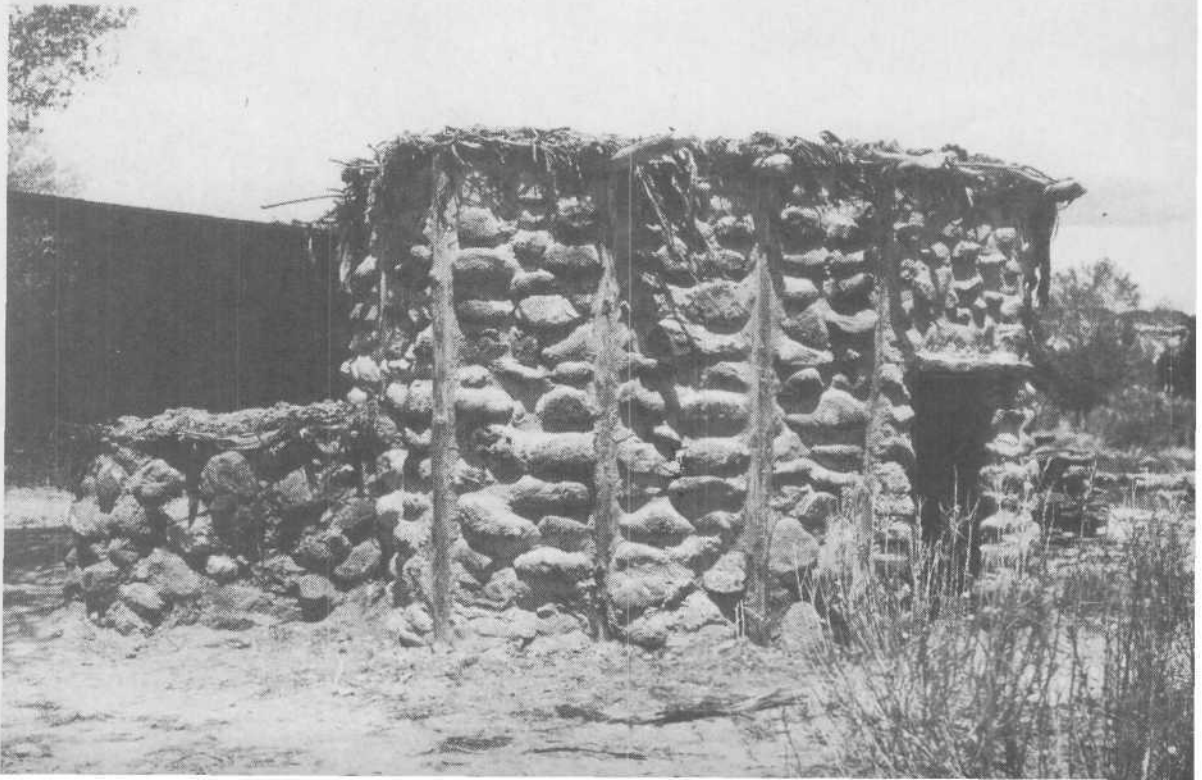
Not far from Boulder the narrow canyons of the Escalante River drainage



Numerous granaries are found in the narrow canyons of the Escalante River drainage. A stone slab was used to seal the structure to protect its contents from animals.

contain other artifacts of the Anasazi occupation. The Calf Creek Falls hiking trail, which begins at the Calf Creek campground, leads past both petroglyphs and several granaries tucked into niches high on the canyon walls. These storage structures, built of sandstone slabs and mud mortar, protected the Anasazis' harvest from animals and the

elements. Another granary can be viewed at the point where State Route 12 crosses the Escalante River. Its location is indicated by a BLM sign and marker. Hiking trails extend along the river in both directions from the highway. A sharp-eyed hiker can spot additional granaries and ruins high on the cliffs. □



An Anasazi dwelling has been reconstructed at the village site. The one-room structure, built of willow poles and masonry, features a storage bin at the side.

Parasites of The Desert

HAVE YOU ever walked along a desert wash and found a strange, pale asparagus-like plant pushing through the sand? If so, then you probably have stumbled across one of the most amazing and unusual flowering plants of the desert.

These are the root parasites which consist of a scaly, fleshy stalk that extends down into the sand several feet where it attaches to the lateral root of a

nearby shrub. These plants do not have the green leaves typical of other plants and are unable to carry on photosynthesis. They are completely dependent upon their host shrub for vital nutrients. Above ground the scaly stalks develop a mass of small purplish flowers that are quite spectacular, especially when viewed with a magnifying glass.

Desert plants have developed all sorts of methods of conserving water, such as

reduced leaves or no leaves, water storage in stems, hairy or resinous layers for insulation, and waxy, waterproof stems. However, the parasites have developed perhaps the most ingenious method of all—simply tapping in on their host!

In the Colorado Desert of San Diego and Imperial Counties there are at least three different species of root parasites. Probably the most common species is given the peculiar name of broom-rape.

by
**WAYNE P.
ARMSTRONG**

*Left: Although they belong to completely different families, the purplish-red flowers of *krameria* (*Krameria Grayi*) resemble small orchids. Note the unique "hitchhiker" fruits covered with slender, barbed spines.*

Opposite page: Some plants, such as Indian paintbrush, are partially parasitic on the roots of nearby host shrubs. Photos by author.



It is also called cancer-root and burro-weed strangler. The derivation of the name broom-rape is somewhat plausible if you stretch the definition of rape to include parasitizing another individual.

Also many shrubs, particularly those with leafless stems or small leaves, are called brooms. The scientific name is *Orobanche cooperi* (or-oh-BANK-ee COOP-er-eye). *Orobanche* is derived from two Greek words meaning a strangling vetch. Dr. J. G. Cooper was a geologist on the Geological Survey of California who collected plants in the Mojave Desert in the 1860s. There are actually several species of broom-rape in California, including some that grow in the higher mountains.

Our common desert species is parasitic on several shrubs, including creosote bush, cheese-bush and burro-weed or bur-sage, a grayish, low, rounded shrub bearing clusters of spiny dry fruits or burs. In Imperial Valley this little parasite also likes tomato plants!

The fleshy flower stalk is able to push through hard, compact river bottoms and washes with amazing force. Often you can find cracks developing and chunks of clay and sand being lifted up. There are also reports of this juicy plant actually pushing its way up through pavement!

The flower stalk gets to be about six to ten inches tall with numerous fleshy scale-like leaves and purplish flowers. The flowers are remarkably similar in general appearance to those of snapdragons and monkey-flowers. In fact, the Broom-Rape Family is actually rather closely related to the Snap-dragon Family. The flower stalk and underground part is apparently edible, either raw or roasted over a campfire. It was eaten by several tribes of South-western Indians. A decoction of the stems was applied to open sores by the Navajo Indians.

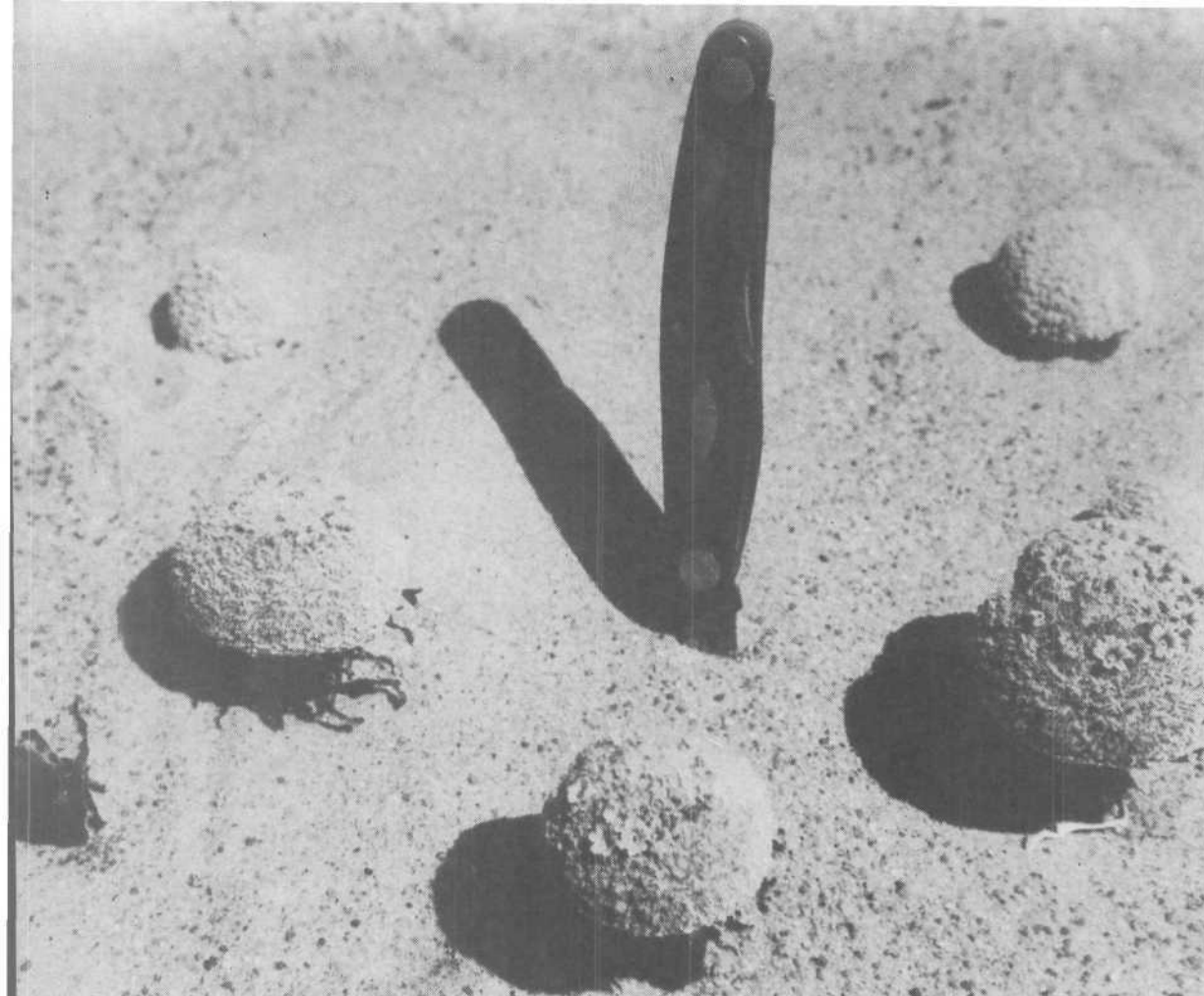
During spring of 1977 broom-rape was



very abundant along Coyote Creek drainage north of Borrego Springs. It was also abundant in several other sandy washes, presumably because of the heavy rains and flash floods of the previous fall. However, in some years the plant is very scarce in these areas. Although it is a parasite with a rather sinister common

name, it doesn't appear to be doing any harm to the vigorous and ubiquitous bur-sage.

The next two root parasites belong to a very small plant family native to western North America. Both species are listed as rare and endangered by the California Native Plant Society. Although their



Left: Several mushroom-like sand food flower heads on the tiny surface of a sand dune. Each fuzzy head contains numerous tiny lavender flowers. Right: Individual sand food plant showing fleshy, scaly stem that extends several feet into the sand where it attaches to a nearby host shrub. Several tiny flowers are visible in the expanded head. Below: A broom-rape flower stalk pushing up through a sandy wash after a flash flood. The fleshy stems and compact flower clusters superficially resemble a stalked fungus. Each tiny flower is purplish with a white border.

range is rather limited, they may be quite abundant in a local area, especially after sufficient rainfall. One species is sometimes called scaly-stemmed sand plant or pholisma (*Pholisma arenarium*). *Pholisma* (foh-LIS-ma) is derived from a Greek word meaning scaly, and *arenarium* (ar-e-NAY-ree-um) is from the Latin word meaning sandy. The fleshy, scaly stem is somewhat like broom-rape except the flowers are produced in a very compact rounded or oval cluster. From a distance it looks more like a stalked fungus than a flowering plant. Each tiny purplish flower has a neat little white border.

The flower stalks may be four to eight inches tall and often occur in clusters of a dozen or more. The plant is parasitic on the roots of several shrubs, such as bursage, cheese bush, rabbit-brush and yerba-santa. This curious little plant was surprisingly abundant in March 1977, along the edge of a large sandy wash just southwest of Ocotillo in Imperial County. This is the area where the tremendous tropical storm Kathleen and flash flood of September 1976 completely washed out Interstate 8, the San Diego-Eastern Arizona Railroad track and cut an enor-

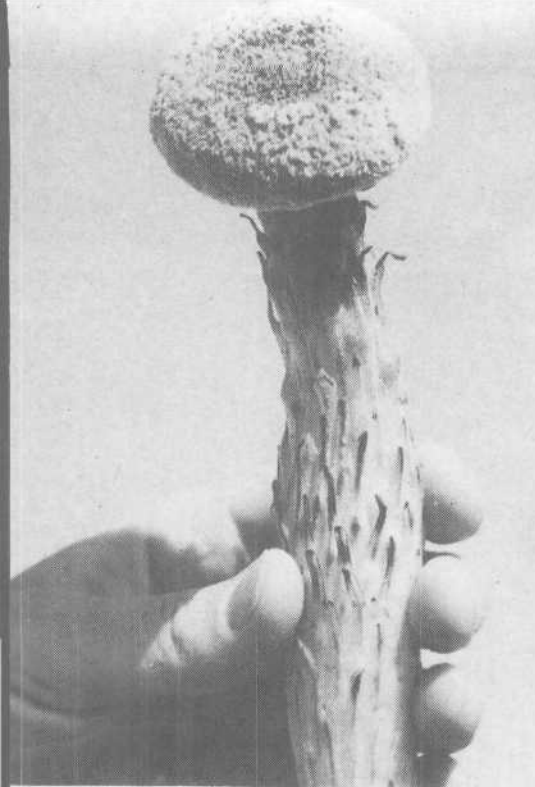
mous swath through the town of Ocotillo.

Certainly one of the strangest looking of all desert plants is sand food or sand sponge (*Ammobroma sonora*). *Ammobroma* (ammo-BRO-ma) is derived from two Greek words meaning sand food, and *sonora* (son-OR-ee) refers to Sonora, Mexico. The common name sand food is very appropriate since the plant was an important and highly-prized food for the local Indians.

This very unusual little root parasite grows on the sand dunes between Glamis and Algodones, west of Yuma, Arizona. The gray, fuzzy flower clusters (up to five inches across) look like big flat buttons or powder puffs on the sand. In fact, they are difficult to spot unless you know what to look for. Embedded in the gray, woolly mats are many tiny purplish flowers. The fleshy, scaly, brittle stem may extend two to five feet below the surface where it attaches to the lateral roots of a nearby shrub. The host shrub is usually either of two species of *Coldenia*, a low rounded or mat-like shrub with small oval leaves.

Another common host shrub is desert buckwheat. According to the eminent authority on desert plants, Dr. Edmund





C. Jaeger, the number of plants branching from the host is usually four to eight, and their combined weight may be many times that of their host! The fleshy stems were apparently eaten raw, cooked or roasted. According to Dr. Jaeger, when



roasted they resemble, in flavor, well-browned yams!

The primary purpose of the above-ground parts of these essentially subterranean root parasites is to produce flowers and ultimately seeds. In fact, the flowers are apparently pollinated by insects (presumably bees and perhaps some flies or beetles). One very perplexing problem exists, and that is how do the seeds germinate and eventually find their way to the host root system deep within the sand?

Any discussion of root parasites would not be complete without mentioning a low, intricately branched, grayish shrub with dense, stiff, thorny branches and greatly reduced leaves. The shrub is called *krameria* or ratany (genus *Krameria*) and belongs to the little-known *Krameria* Family (*Krameriaceae*). The fragrant, purplish-red flowers superficially resemble certain members of the Pea Family, and may appear in great profusion during late spring. One of the most peculiar and distinctive features of this bush are small, oval, one-seeded fruits covered with long slender spines which stick out in all directions like a strange miniature space satellite. In *Krameria grayi* each slender spine terminates in four minute hooks, somewhat resembling a tiny harpoon or grappling hook. These elaborate barbed spines presumably aid in seed dispersal, like the well-known and sometimes obnoxious hitchhiker fruits of bur-clover and cocklebur! Like some of the colorful Indian paintbrushes, *krameria* is apparently only partially parasitic on the lateral roots of nearby shrubs. In fact, future studies by botanists will undoubtedly reveal other parasitic or semiparasitic associations between desert shrubs.

Two species of *Krameria* are fairly common on the rocky alluvial slopes and canyons of the Mojave and Colorado Deserts. *Krameria grayi* can be found throughout the Borrego Springs area and along many of the excellent nature trails within Anza-Borrego State Park. To really appreciate this shrub you must look closely at the delicate flowers and especially the unique little fruits. Through a hand lens the flower is as intricate and beautiful as any orchid!

**Desert Parasites
will be continued
next month.**

Desert/July 1978

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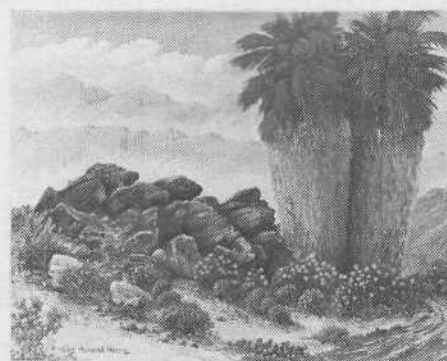


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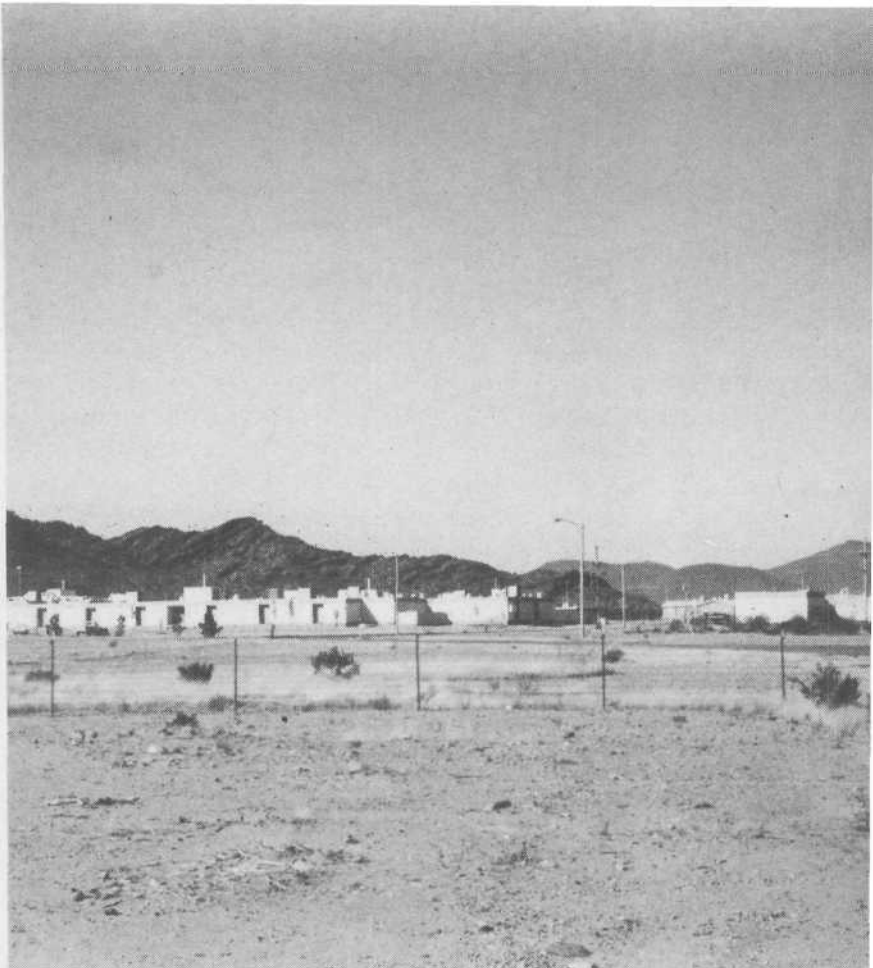
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Right: The Bureau of Indian Affairs administers the spacious and modern Santa Rosa School, located near the Papago village of the same name.

CASA GRANDE TO QUIJOTOA

by DICK BLOOMQUIST



DOWN IN THE sun-drenched Papago country of southern Arizona there's a lightly traveled byway that links two dissimilar communities. At the north end of this paved but unpublicized route is Casa Grande, a farming and ranching town that had over 10,000 people in the last census. At the south end is Quijotoa, a tiny village in the heart of the Papago Indian Reservation. Between the two lie 60 miles of beautiful Sonoran Desert dotted with saguaros, palo verdes and remote Indian settlements.

Casa Grande, "Big House" in Spanish, takes its name from the aboriginal Casa Grande ruins — now a national monument — several miles to the northeast. Our route, however, heads due south, crosses over the Interstate 8way, and soon enters the immense Papago Reservation, which extends to the Mexican line. On the west the reservation touches Organ Pipe Cactus National

Monument and on the east it approaches Tucson.

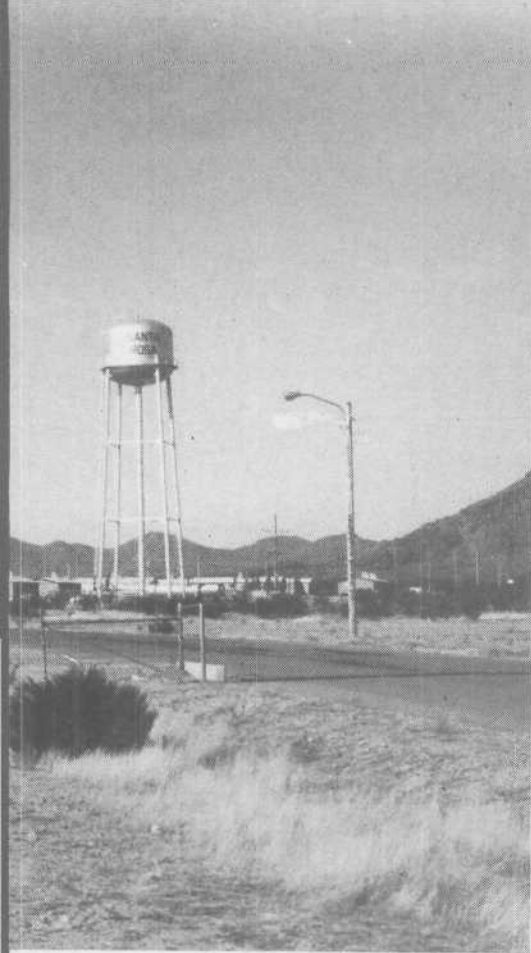
For most of its miles through Papago land our road follows the Santa Rosa Valley, a long north-south trough drained by Santa Rosa Wash. This normally dry arroyo is tributary to the Santa Cruz River, which in turn joins the Gila up near Phoenix. The bajadas — the sloping outwash plains between the mountains and the valley floor — are green with saguaro and palo verde, while down on the flatlands, mesquite and creosote are dominant. Dirt tracks break off frequently from the pavement, leading to drowsy Papago settlements with names like Kohatk, Sil Nakya, Hick-iwan, Anegam, and Vaya Chin.

The mountains bordering Santa Rosa Valley may conceal a fabulous Indian arms cache. A prospector named W.E. Bancroft supposedly stumbled upon the arsenal in the 1880's while traveling

from Casa Grande to his claims near Quijotoa. Bancroft said the cache was located in an adobe building in mountains on the west side of the valley; it consisted of an incredible collection of Spanish and American firearms hanging from wooden pegs or supported by forked sticks. Bernard L. Fontana told the story in the January, 1960, issue of *Desert*.

About 45 miles out of Casa Grande, and a short distance to the left of the road, is the large Papago village of Santa Rosa, or Gu Achi as it is shown on some maps. Several of the homes are flat-roofed adobes, and round outdoor ovens and ocotillo-stalk fences are much in evidence. Nearby, the giant silver water tower of the modern Santa Rosa School dominates the landscape.

It was in this sector of the Papago reservation that archeologists made one of their most rewarding Southwest digs.



Ventana Cave (*ventana* means "window" in Spanish) was the name of the site — a shelter under an overhanging cliff used by men for more than 10,000 years. Displays at the Arizona State Museum in Tucson reconstruct what life was like at Ventana 10,000 years ago, when the camel, bison, antelope, mammoth, ground sloth, dire wolf and primitive horse roamed the then moist grasslands of southern Arizona.

South of Santa Rosa our roadway climbs gradually to Quijotoa. This is lush, arboreal desert, with palo verde and giant saguaro growing in dense stands. Staunch ironwood trees, mesquite, creosote, prickly pear, cholla, and considerable grass also cover the land here. Sixty miles out of Casa Grande we reach the southern end of our trail at the Papago village and trading post of Quijotoa, or Covered Wells as it is some-

The beautiful Santa Rosa Valley in the Papago Indian Reservation of southern Arizona. Santa Rosa Mountains in background border the valley on the east.

times called. Here, too, is the junction with State Highway 86, which can be followed west to Ajo (about 50 miles) and Organ Pipe Cactus National Monument, or east of Tucson (80 miles). For most of its length Highway 86 lies within the Papago reservation. The elevation at Quijotoa is a bit over 2000 feet, some 600 feet higher than our starting point at Casa Grande.

The Papagos have lived here for many, many years. Father Kino noted a settlement in this vicinity when he traveled the Santa Rosa country back around 1700; his maps showed it as "La Merced" ("The Mercy"). Far off to the southeast from Quijotoa, mystic Baboquivari Peak, steeped in Papago legend, breaks the skyline. It was there that the great being I'itoi dwelt in a cave and watched over his people, coming down to help them when he was needed. Once he descended to slay Eagle Man, a monster who was devouring the people.

The Quijotoa Trading Post sells groceries and gasoline as well as Indian baskets, pottery and jewelry. The front of the building is white and yellow,



colors which bring to mind the short-lived gold and silver excitement of the 1880's, when mining men like W.E. Bancroft, mentioned earlier, were active nearby. A plaque two miles to the east along the Tucson road (Highway 86) describes the boom: "Quijotoa. This is a Papago word meaning mountain shaped like a carrying basket. Discovery of a pocket of gold and silver ore led to a fabulous boom development here in 1883. The desert has reclaimed the original site and its suburbs of Logan City, New Virginia, Brooklyn, and Allen City. The mine was a complete failure — a tiny pocket of riches on the mountain."

The Papago country is quiet and peaceful today. The face of the land has changed little since the coming of white civilization, and along the Casa Grande-to-Quijotoa road a feeling of harmony still prevails between man and the desert. □

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Calendar of Events

This column is a public service and there is no charge for listing your event or meeting—so take advantage of the space by sending in your announcement. We must receive the information at least three months prior to the event.

JULY 4, Laws Railroad Museum Celebration, Bishop, California. Music, entertainment, barbeque. Sponsored by the Bishop Museum and Historical Society. Adults \$1.00, children 50c.

JULY 14-16, Northwest Federation of Mineralogical Societies 38th Annual Convention and Gem and Mineral Show, Evergreen State Fairgrounds, Snohomish, Washington. Hosted by the Snohomish Lapidary Club, Inc. Displays, demonstrations, lectures, field trips.

JULY 15 & 16, Reno Gem and Mineral Society's Annual Show, Centennial Coliseum, 4590 S. Virginia St., Reno, Nevada.

AUGUST 19 & 20, Nature's Crown Jewels, sponsored by the Simi Valley Gem and Mineral Society, Larwin Community Center, 1692 Sycamore Dr., Simi Valley, Calif. Demonstrations and dealers.

AUGUST 25-27, Sixth Annual Big Brother Run, organized and sponsored by the San Diego Four Wheelers. This event provides an opportunity for the Big/Little Brothers to enjoy an off-road adventure in safe vehicles operated by experienced drivers. Four-wheel-drive clubs and individual owners are encouraged to participate in this worthy cause. Contact San Diego Four Wheelers, Box 2396, La Mesa, Calif. 92041.

SEPTEMBER 23 & 24, Centinela Valley Gem and Mineral Club's "Harvest of Gems" show, Hawthorne Memorial Center, El Segundo Blvd., and Prairie Ave., Hawthorne, Calif. Dealers, displays, demonstrations, prizes. Ample free parking.

SEPTEMBER 23 & 24, 38th Annual Show of the Los Angeles Lapidary Society, "March of Gems" at the Brentwood Youth House, 731 South Bundy, south of San Vicente. Dealer space filled.

SEPTEMBER 23 & 24, Carmel Valley Gem & Mineral Society, Monterey Co. Fairgrounds, Monterey, Calif. "19th Jubilee of Jewels." Dealer space filled.

SEPTEMBER 30-OCTOBER 1, "Nature's Jewel Box," sponsored by the Napa Valley Rock & Gem Club, Inc., Napa Town and Country Fairgrounds, 575 Third St., Napa, Calif. Dealers, demonstrations, drawings. Donation 50c. Easy parking and camping facilities on the grounds.

OCTOBER 7 & 8, Mohave County Gemstones 8th Annual Gem and Mineral Show. Mohave County Fairgrounds, Kingman, Ariz. Dealers. Chairman: John Sourek, Kingman, Arizona 86402.

OCTOBER 14 & 15, Annual Show "Rock Trails West" sponsored by the Campbell Gem and Mineral Guild, Santa Clara County Fairgrounds, San Jose, California. Dealers. Chairman, Ralph Quain, Box 552, Los Gatos, California 95030.

OCTOBER 14-22, 3rd Annual Gem and Mineral and Handcraft Hobby Show, Sportsman's Club of Joshua Tree, 6225 Sunburst, Joshua Tree, California. For information, write P. O. Box 153, Joshua Tree, Calif. 92252.

OCTOBER 28 & 29, Convair Rockhounds' Annual Show; 1978 San Diego County Gem-boree, "Earth's Hidden Treasures." Al Bahr Shrine Temple, 5440 Kearny Mesa Rd., San Diego, California. Retail Dealers and Wholesale Room. Programs scheduled daily.

NOVEMBER 4 & 5, Bear Gulch Rock Club's 16th Annual Gem and Mineral Show, Masonic Hall, 1025 N. Vine, Ontario, Calif. 91761. Dealer space filled. Exhibits, demonstrations. Free admission and parking.

NOVEMBER 18 & 19, Lake Havasu Gem & Mineral Society's Ninth Annual Show, Junior High School, Lake Havasu City, Arizona. Dealers, Chairman: Harry Kilb, P. O. Box 990, Lake Havasu City, Arizona.

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CENTER OF TOWN—LONE PINE, CALIFORNIA

OWENS LAKE LOOP

Continued from page 29

mile east of the highway. Watch for a sign. An historical monument has been erected which gives a brief history of the ovens' use. This is a good overnight campsite—one we have used often.

Next stop is at Columbia-Southern's plant. A caretaker was living there and might give permission for collecting crystals. Unfortunately, the heavy rains of this past winter make it doubtful that any crystals remain.

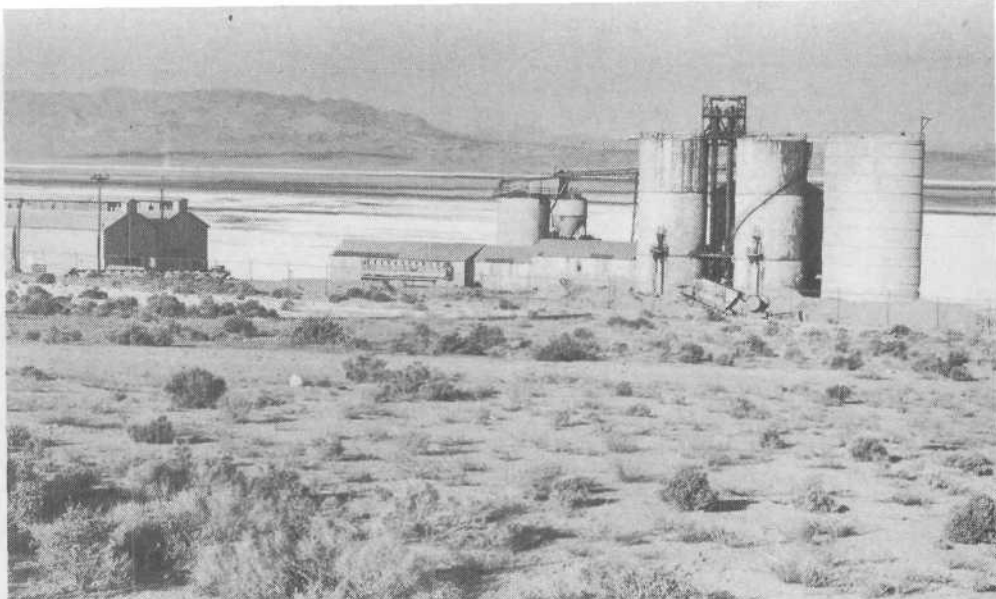
A few miles north of Bartlett, Inyo County maintains a recreational area at Diaz Lake. Camping, boating, water skiing, fishing and swimming are available. There are 200 campsites. No hook-ups but cold showers and sanitary facilities are provided. Portugee Joe, Locust Grove and Tuttle Creek Campgrounds, west of Lone Pine, offer good camping areas for overnight or a couple of weeks. Supplies are available at Lone Pine.

A Visitor Center is now open at the junction of Highways 395 and 136, south of Lone Pine. Maps and Information on recreational activities throughout the Owens Valley are available. The Center is new but there are plans to have many interesting exhibits on display.

Owens Lake has played a substantial role in the development of Inyo County. Perhaps, more importantly, it gave its life to benefit man. In 1907, in what Owen's Valley residents will always think of as "the dastardly rape of their resources," Los Angeles citizens voted a 23 million dollar bond issue to finance the construction of the Los Angeles-Owens Valley Aqueduct. The Owens River was diverted to supply thirsty Southern California and Owens Valley was left without control of the water her ranchers and residents needed. Its source of life removed, the great lake began to dry up. The fight over water between the people of Owens Valley and Los Angeles is a story in itself.

This beautiful, lush valley, that had promised so much, began to decline and there were many dark days. Eventually, a new resource—recreation—was encouraged. The glorious scenery, historical sites and recreational areas now lure thousands of visitors annually.

The immense, white salt crust—the residue of Owens Lake—radiates in the



Columbia-Southern's plant at Bartlett was shut down in 1966 when heavy rain flooded Owens Lake and inundated their ponds and salt beds.

brilliant sun. Here and there, algae has colored the crust a rose-pink and a few deep water holes still exist. There are stories of lost bullion in the lakebed, and, not too long ago, parts of a wrecked steamer were recovered.

The Owens Lake Region has many

treasures to offer those who love Western Americana and the great outdoors. Come—and "Tour Owens Lake." You are sure to find new insight of the people who, through austerity and hardship, opened the doors to the recreational region we now enjoy. □

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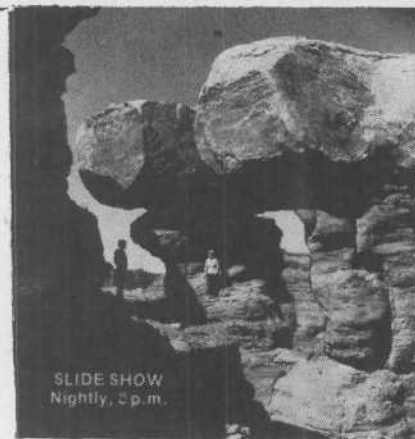
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Walking Rocks in Canyonlands

What's Cooking on the Desert?

by STELLA HUGHES

Deep Pit Barbecue!

FOR INFORMAL entertaining, nothing beats a barbecue! The great enthusiasm for barbecues today is a revival of the world's oldest, simplest and most delicious way of preparing food—by direct heat or by burying in a pit and letting the meat steam in its own juices.

The Southwest has the greatest heritage of outdoor-and-barbecue cooking lore than anywhere else in America. To the old-fashioned methods of our pioneer settlers, we have added the wonderfully and varied approaches of our good neighbors south of the border.

In this article I'm going to give instructions for deep-pit barbecue for large quantities, enough to feed from 50 to several hundred people.

For barbecuing one-half beef, or 250 pounds (allowing three-fourths pound per person, no less), dig a hole four feet

deep, three feet wide and six or seven feet long. Select your site for the pit with care. Stay away from low ground or sandy soil. Sand, when hot, will cave in, covering the coals. Keep the pit away from large trees in order to avoid troublesome roots. And, remember, the fire will scorch leaves of nearby trees if the pit is too close. If you dig the pit several days ahead you can keep it dry by covering with tin, or a tarp, or sheets of heavy plastic. Just be sure the pit doesn't get wet.

Now for the wood. If you don't have an abundance of good hardwood, forget it! You can't barbecue with resinous wood such as pine, spruce, fir, cedar, juniper or pinon. Nor will you be successful using cottonwood, aspen, poplar or sycamore. In the Southwest, the very best wood is mesquite or oak. Some fruit woods are O.K., such as well-cured apple or cherry; also wild walnut. However, walnut isn't my favorite wood for barbecuing. Anyone living where there is hickory wood is in luck, as hickory is impossible to beat for hot, long-lasting coals. If I don't have a good supply of dry oak or mesquite, I refuse to do any barbecuing.

You have to start the fire in the pit at least five hours before putting in the meat. If logs are very big, six or seven hours burning time doesn't hurt. Don't fill the pit chock full of wood at first, but burn a layer of smaller logs, and when they are nice red coals add another layer of wood. Just remember, it's impossible to have *too many coals*, but it's a major disaster if you don't have enough.

After you have some 18 inches (24 inches is even better) of good red coals, remove any charred chunks of wood that may not have burned completely. A long-handled shovel or pitchfork will do for this purpose. It's best not to add real large logs the last hour or so of burning. Just don't skimp on the amount of wood. It's better to have a few too many coals than to end up with raw meat.

When there are no longer any flames, lay down a strip of tin or corrugated iron, directly on the coals. The tin must be just slightly narrower than the pit. Two pieces of tin can be used, overlapping them. Don't put the tin in place until the very moment you are ready to put in the bags of meat.

This is the way to prepare the meat:

Cut roasts of beef, using front quarters, hind quarters, ribs, neck—any part of beef except the T-bones, which you'll want to save for grilling. No need to trim away the fat, nor do you want to bone the roasts. Cooking with bone and tallow gives cheaper cuts of meat wonderful flavor. Just be sure the meat is not frozen. Cuts should weigh close to 15 pounds and not less than 10. Flavor any way you like. If you are simply a salt and pepper person, well, then use just salt and pepper. I go a little wild and scatter thick onion slices, slivers of fresh garlic and crumpled bay leaf on mine. I use coarse black pepper and salt, sprinkle on Accent (monosodium glutamate) and several dashes of liquid smoke. Go easy on the smoke—just a hint will do.

Each roast must be wrapped in heavy aluminum foil. Stockinet or toweling will do. The foil helps retain the juices around the meat and it is easier to handle when removing from gunny sack to serve.

Put the foil-wrapped meat into a burlap bag (gunny or toe sack), fold over until it is a tight bundle, and tie with wire. Baling wire (hay wire) serves best. Leave a twist or handle in the center of the bundle so removing from the pit can

be done by hooking a gonch-hook or pitchfork onto the wire loop. Dampen the sacks. They should not be sopping wet so don't soak them in a tub of water. Just run the hose over the bottom of the bundles lightly. The burlap only needs to be damp enough to keep from scorching while you are putting the meat onto the hot tin.

Now the meat is ready for the pit. Put the bundles of meat in quickly. Have several people to help if you have more than 10 bundles. Arrange them a few inches apart or merely touching. Just be sure you don't have to pile them on top of each other. Keep the bundles to the center of the tin, avoiding the extreme corners if possible.

Lay a strip of tin over the bundles of meat, being sure all are covered. Then start filling the pit with dirt as fast as you can. Several husky helpers won't hurt at this stage. You want to get the air cut off from the coals as soon as possible. Be sure no air pockets remain after you have at least a foot of dirt packed down. Check later, and if even a wisp of smoke is escaping add more dirt.

The meat takes seven to 12 hours to cook, depending on the size of the roasts. Leaving it in the pit longer doesn't hurt. I've often left it in 12 to 14 hours and dug it up just prior to serving the meal. The very *minimum* length of time is seven hours, even for those who like their meat pink.

In barbecuing beef for 2,500 Apaches at San Carlos, Arizona in 1972, we had the pit dug by backhoe machine. It was over 30 feet long, three feet wide and four feet deep. We used 1,600 pounds of beef with bone intact. We used the entire beef (four heifers) except for the neck meat I used for making stock for my barbecue sauce. We burned almost two cords of well-cured mesquite wood, cut in four-foot lengths. The fire burned for seven hours before we put in the meat. The meat remained in the pit for 11 hours. When removing from the pit the bundles were laid on the corrugated iron and not unwrapped until needed.

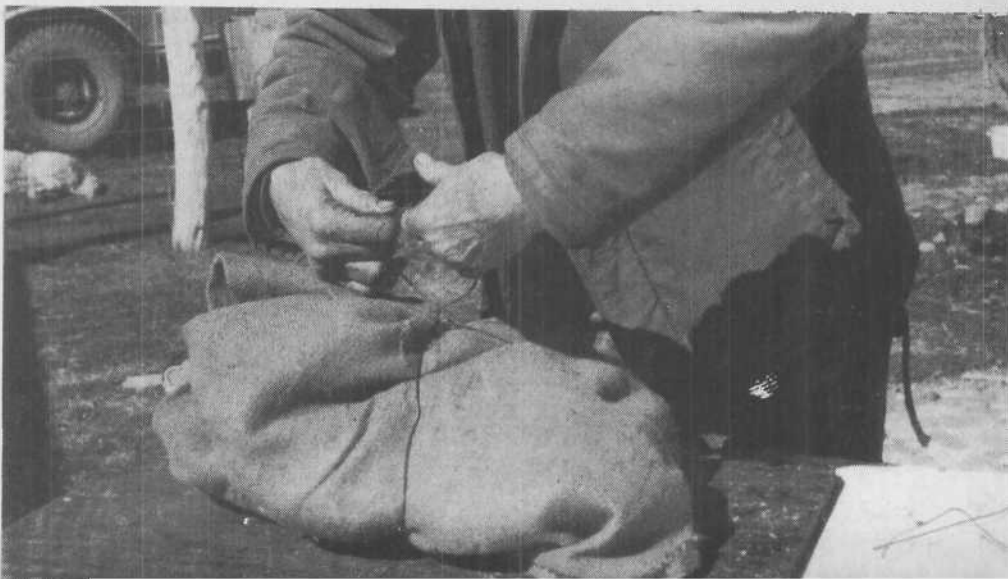
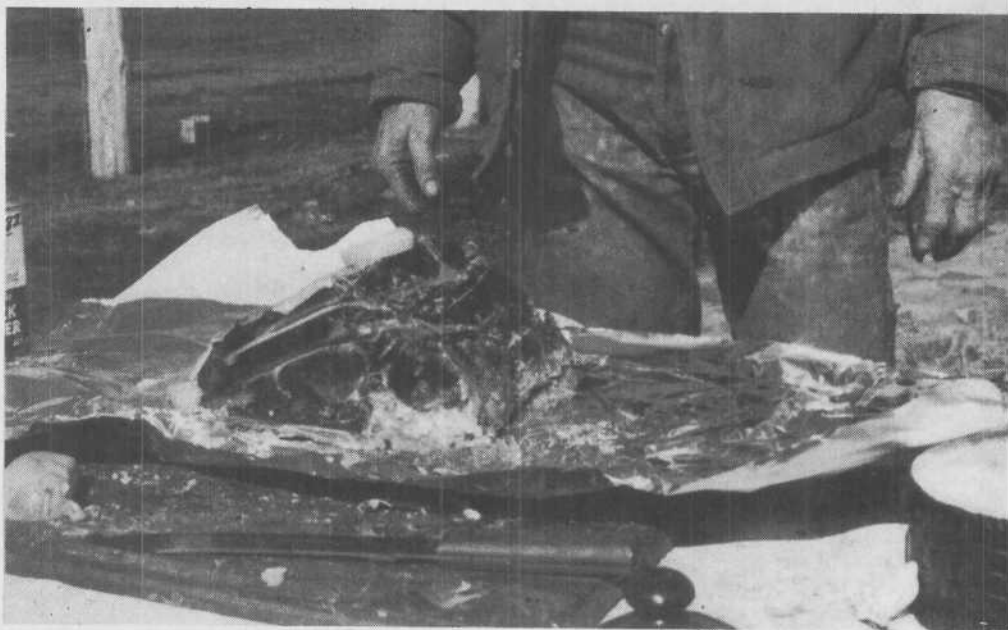
By all means, never let rain seep into the pit while barbecuing. If it rains, dig trenches around the pit and cover with water-proof sheeting during the time the meat is cooking.

Now, it stands to reason if you live in an area where hardwood costs \$50.00 to \$75.00 a cord, this method of barbecue-

ing meat would be quite expensive. However, if you can go out and gather your wood free, this is a great way to prepare barbecue for several hundred people.

Continued on page 46

Right: Burn good hardwood in pit for five to seven hours. There should be 18 to 24 inches of red coals. Below: Cut roasts to 12-15 pounds, season to suit and then wrap with heavy duty foil. Bottom: Foil-wrapped meat is then placed in burlap bag and folded into a tight bundle. Tie securely with wire, being sure to leave a loop to make it easy to handle when placing in or removing from the pit.



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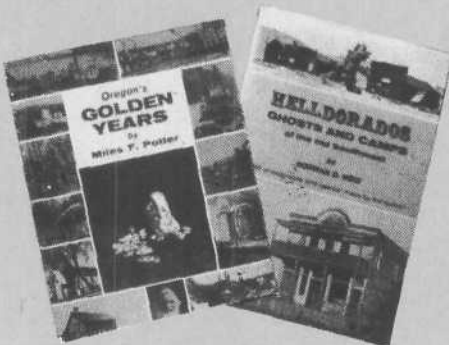
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Letters to the Editor

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Outhouse Patrol . . .

Regarding the jerky recipe by Stella Hughes in the May issue, for my herd of descendants who are hiking scoutlets, I buy flanks (steaks) and cut across the grain (no right thinking prospector would ever cut with the grain). Then I split each one-inch strip, cutting only one end so the folded meat will hang naturally from the wire (coat hangers hung in the patio). When salting I use a salt shaker for both sides. I also add black pepper.

When I was a lot younger, I watched the Yaquis at our mine hang a quarter of venison from a branch of a tree by the hoof, and slice strips with the grain.

We always had venison jerky when I was a boy. Dad would string a clothes line from the porch of our adobe to the peak of the outhouse, and I can't remember seeing it without something hanging from it—jerky, peppers, and occasionally clothes. As a 10-year-old, my job was to sit in the shade of the porch with my 22 and discourage the hungry buzzards who had spotted the prime jerky. Payment—one centavo per buzzard.

GUY GIFFORD,
Los Angeles, California.

New "Hoodoo Mud" Facts . . .

I have read *Desert* for 30 years and thoroughly enjoy it. As an ex-pro prospector I can appreciate the stories of Ken Marquiss. His articles are excellent.

There is one small error in his article of "Hoodoo Mud." The man who was shot in Sam Ball's cabin was named Ed McSparrin. He was killed by Jim Madden alias Jim Claybourne during a drinking bout in Sam Ball's cabin July 17, 1932. McSparrin was buried near the cabin. Claybourne was tried in Independence, California in November. The jury was out 77 hours and was finally discharged as hopelessly deadlocked, 11 for acquittal and one for conviction.

Anyone interested in this can look it up in the back files of the newspaper at the County Library at the Court House at Independence.

BURRELL C. DAWSON,
Lone Pine, California.

Anonymous Query on Mission . . .

During the late fiftys, two men had a friend drop them off for a hiking expedition in a remote area of Southern Arizona. A week later, at a rendezvous, the hikers explained they had photographed what they believed were the ruins of a lost mission.

Agreeing to meet again in a week, the film was taken to Gila Bend for developing. The two men failed to appear at the appointed time and were never heard from.

I am enclosing a photo of the still lost mission. Do you recognize these ruins?

ANONYMOUS.

Editor's Note: Perhaps some of our readers can clue us in on the identification of these ruins.

DEEP PIT BARBECUE

Continued from page 41

A few words of caution to the amateur. If you barbecue only one or two bundles of meat, the pit must be smaller, but almost as deep. Too much heat is lost around only one or two bags of meat, besides being wasteful of wood.

If the meat is not cooked done and left in the pit over 14 hours, it can spoil while in the pit. It's impossible for meat to spoil in the pit this length of time if you had enough good coals in the first place. Spoilage can only occur when there has not been enough heat.

Before the beginner goes into barbecuing on the grand scale, it might be prudent to try one large roast in your backyard for a trial run.

BARBECUE SAUCE

(makes about one gallon)

Take one juicy shank soup bone, or several pounds of neck meat, put in a large kettle, cover with cold water and boil until all meat falls freely from bones. Strain, and use two quarts of this broth for base. By using rich beef stock you don't need to add butter or other fats.

Add:

- 2 cans tomato sauce or tomato paste
- 1 can El Pato brand chili sauce or hot enchilada sauce (either, but not both)
- 1 cup catsup
- 1 cup fresh lemon juice or 1 cup vinegar. I prefer the lemon juice.
- 1 large onion, diced
- Several cloves garlic, finely diced
- 1 cup pure chili powder (coarse ground)
- 1 cup brown sugar
- A few drops of liquid smoke
- Salt to taste after sauce has simmered several hours.

Add black pepper if desired

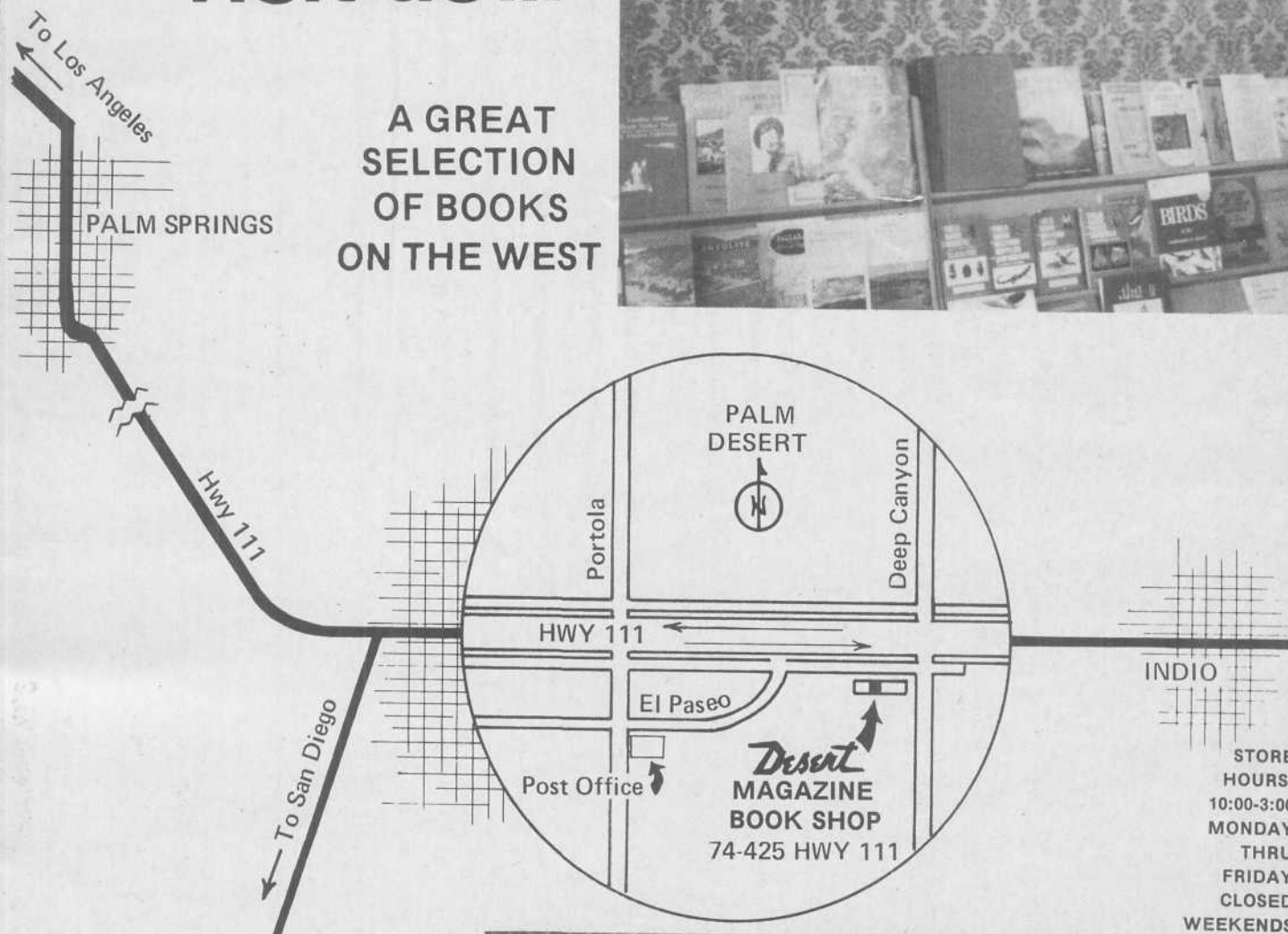
This is no panty-waist barbecue sauce. It's hot and spicy (if you have been able to obtain the El Pato chili sauce).

The kids won't like this sauce unless they were weaned on a chili pod. If you want to go a little easy on the "hot" you can experiment with less chili powder, omit the El Pato sauce and increase the amount of catsup. This sauce will freeze well and keeps for days in the refrigerator. It's delicious served piping hot on grilled hamburgers. You can add several cups to an otherwise blah pot of chili beans. □



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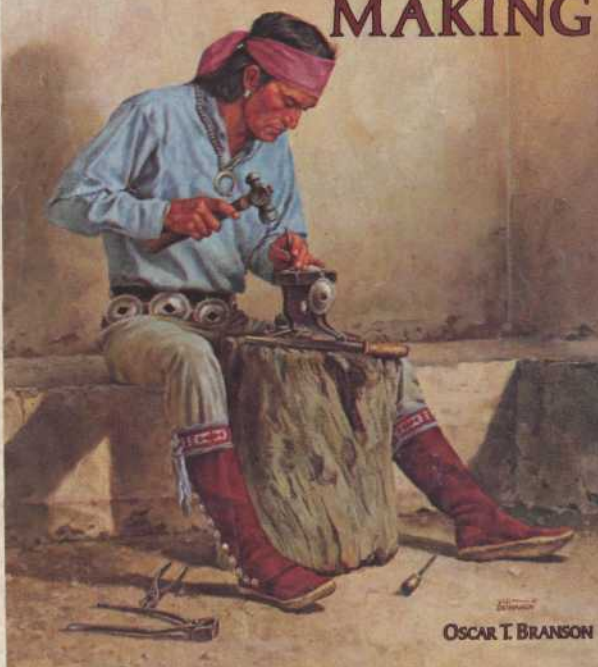
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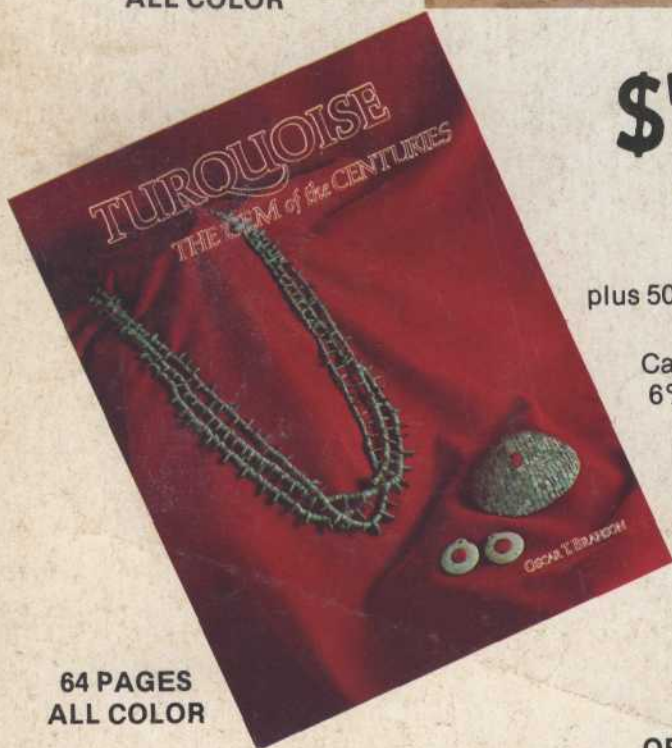


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